LabTech

CDS Analytical
Empore™

SPE 2000

Automatic Solid Phase Extractor

Your Lab Our Tech

LabTech Group

LabTech (Stock Code: 688056.SH) was established in 2002 as a global technology company, structured around integrated functions including R&D, manufacturing, sales, and customer support. We are committed to the development of innovative scientific instruments and equipment, serving a broad range of fields such as environmental monitoring, food safety, pharmaceuticals, disease control, and materials research. By providing practical, reliable laboratory solutions, LabTech has become a trusted one-stop partner for customers across diverse scientific disciplines and industries.

LabTech currently holds more than 100 patents and software copyrights. We are a certified High-Tech Enterprise and have been consistently recognized as one of the “Most Influential Enterprises” in China’s instrumentation industry. LabTech is a leading global supplier specializing in the integration of multi-type, multi-functional sample preparation technologies and analytical systems into fully automated laboratory platforms.

We own multiple brands including **LabTech**, **CDS Analytical**, and **Empore™**, with R&D and production centers located in both China and the United States. Our sales and service networks span Massachusetts and Pennsylvania in the U.S., Hong Kong, and major cities across China. Our comprehensive product portfolio includes analytical instruments, sample preparation systems, general laboratory equipment, medical devices, consumables, and laboratory engineering services— all designed to support customers with a true one-stop solution. To date, LabTech products have been delivered to over 100 countries and are trusted by nearly 30,000 customers worldwide.

SPE 2000

An Automatic Solid Phase Extractor Capable of Continuous Sample Filtration

The SPE2000 Automatic Solid Phase Extractor performs the entire solid phase extraction process automatically. It features an integrated online filtration function, enabling efficient batch processing of samples containing particulates. The filtration capability is widely applied in the detection of residues in food, packaging materials, and other samples across the food, materials, and chemical industries.

Applications & Industries

Food Safety

Detection of veterinary drug residues and other organic contaminants in animal-derived foods (meat, eggs, milk). Analysis of pesticide residues, illegal additives, and mycotoxins in plant-derived foods.

Environmental Protection

Determination of semi-volatile organic pollutants in environmental samples such as water, soil, and solid waste, including PAHs, PFAS, antibiotics, PCBs, and nitrobenzenes.

Chemical Industry

Separation and detection of trace organic contaminants in chemical product extracts, such as the determination of PAHs in plastics.

Others

Detection of water quality and food safety parameters in disease prevention fields. Determination of pesticide residues and mycotoxins in traditional Chinese medicine. Detection of toxic substances, poisons, and drug residues in wastewater for forensic and public security applications.

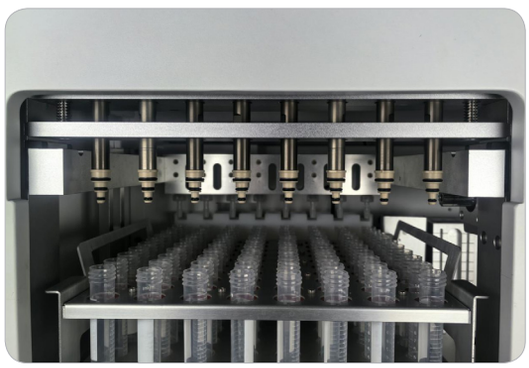
Performance Advantages

High Throughput, Full Automation, Compatible with Both Small and Large Sample Volumes

- Capable of processing six or eight samples simultaneously, the system supports 24-hour continuous batch operation and performs the entire solid phase extraction process automatically.
- It accommodates a wide range of sample volumes, from 0 to 20 L, ensuring flexibility for various application needs.

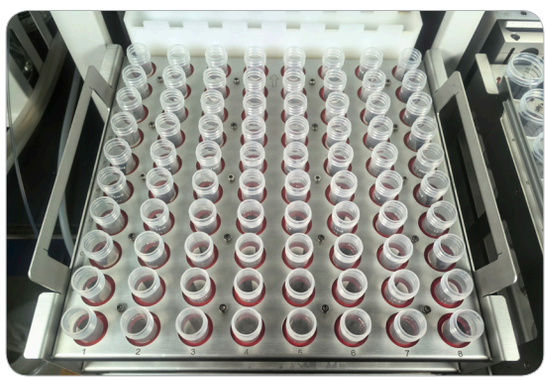
Strong Compatibility, Wide Application Range, and Precisely Controlled Flow Rate

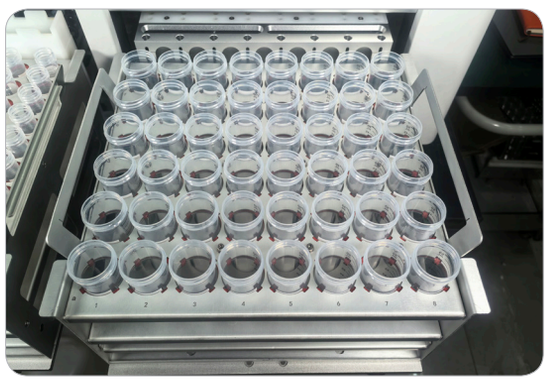
- The instrument is compatible with a variety of commercial SPE cartridges, including 1 mL, 3 mL, and 6 mL.



- It utilizes a high-precision syringe pump to deliver solvent under positive pressure, ensuring accurate solvent volumes during condition, rinsing, and elution. The fully sealed flow path and precisely controlled flow rate guarantee excellent reproducibility and system stability.

- The system also supports multiple types of sample collection containers, including 15 mL centrifuge tubes, 20 mL test tubes, 40–1 mL concentrator cups, 50 mL centrifuge tubes, and 60 mL test tubes. For large-volume samples, the system is equipped with an external sample rack and tubing assembly, enabling continuous batch processing of high-volume samples.

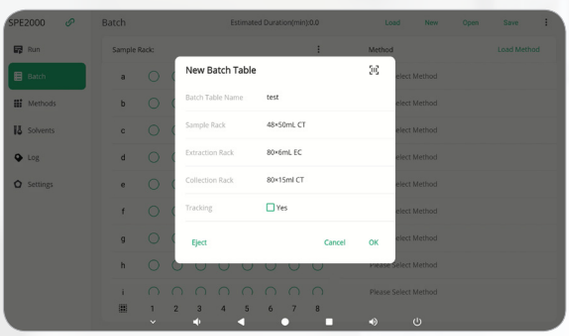




Performance Advantages

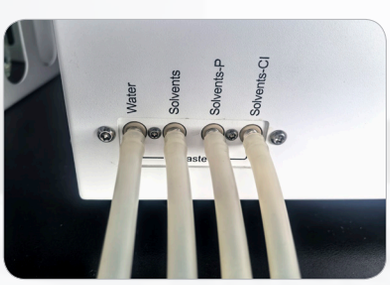
Intelligent Racks with Automatic Recognition and Quick Startup

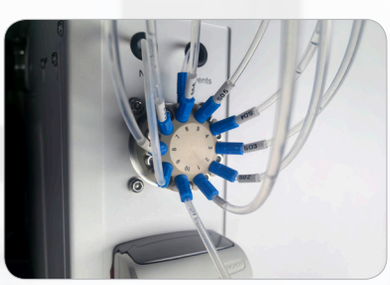
- Extraction cartridge racks, sample racks, and collection racks can be automatically ejected with one click, facilitating rack replacement.
- Sample and collection racks feature built-in positioning and recognition, allowing the system to automatically identify rack type and match positions, which simplifies batch sequence setup.



Smart Solvent and Waste Management with Contact-Free Design to Prevent Cross-Contamination

- The system can switch between 8 different solvents via a rotating valve. The software automatically calculates solvent usage and provides an alert if additional solvent is needed for batch sequences.
- Four selectable waste channels in the software allow differentiation of aqueous and organic waste streams. The system is equipped with an active waste pump to prevent residual waste inside the instrument.
- The Barbed Rod uses a top-sealed design to avoid cross-contamination. Automatic cleaning of the sampling needle and barbed rod further eliminates the risk of cross-contamination.

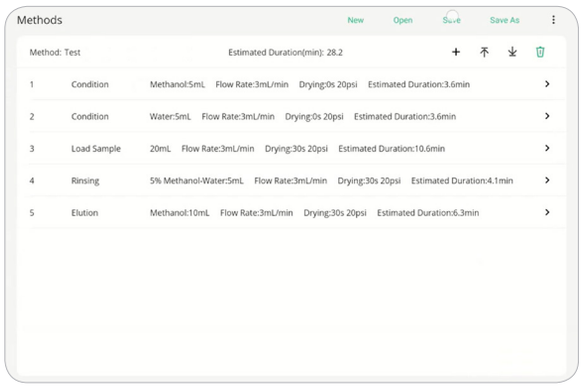


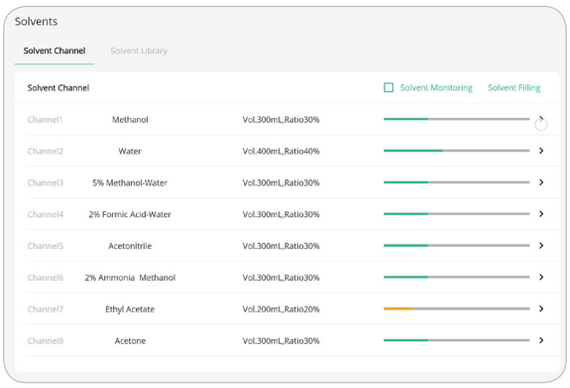


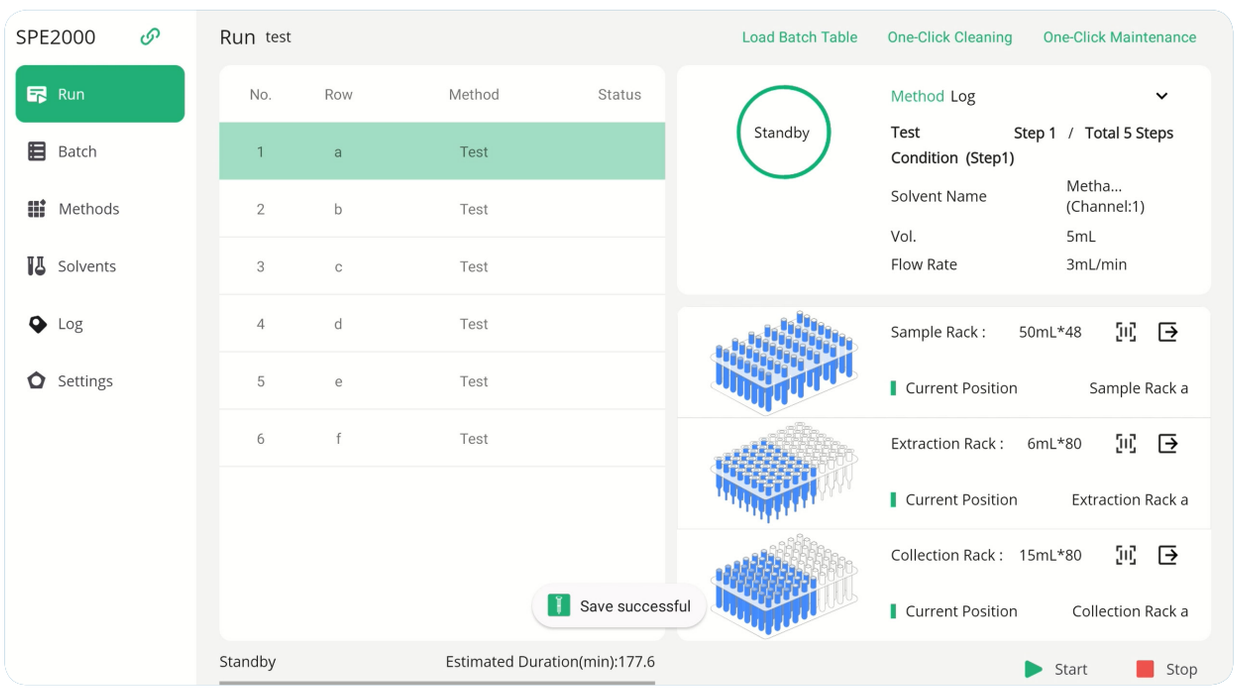
Performance Advantages

Intelligent Software Recognition, Flexible Control, and Real-Time Display

- Equipped with a touch-screen terminal and built-in app software for easy operation, featuring an intuitive interface that displays key information in real time.
- Automatically monitors solvent volume, gas pressure, and communication status.
- The system automatically calculates the total runtime based on the method steps and parameters, as well as the remaining time of the batch during operation.



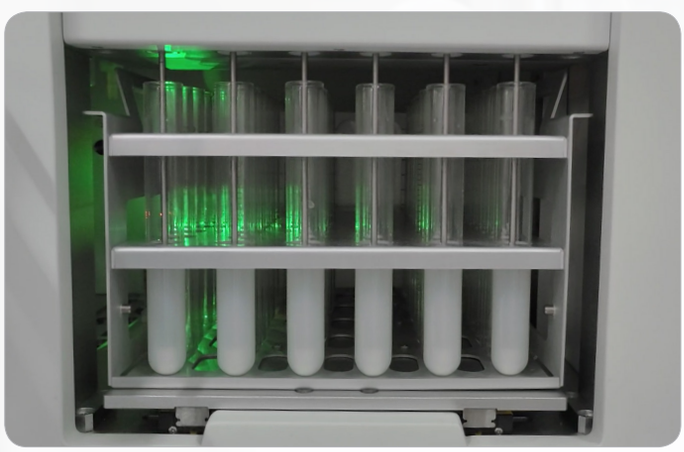




Veterinary Drug Residue Solution for Animal-Derived Samples

Online Filtration for Particulate Samples with Anti-Clogging Design and Built-In Error Correction

- The system performs automatic online filtration during sample loading through a filter tip, preventing particulate samples from clogging the SPE cartridge and ensuring continuous batch operation. The instrument automatically picks up and discards filter tips during the process.



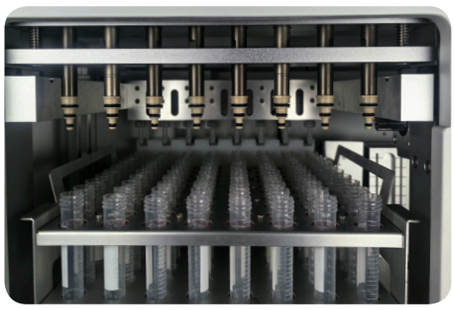
Veterinary Drug Residue Solution for Animal-Derived Samples

Universal Barbed Rod Compatible with Multiple SPE Cartridge Sizes

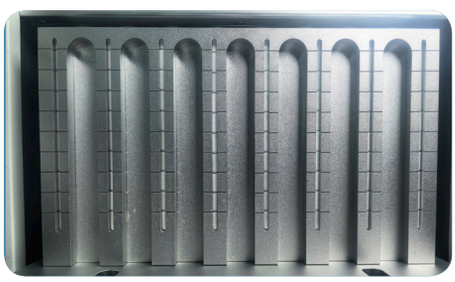
Application Cases

Determination of Quinolone Residues in Honey

- The system features a universal barbed rod design that automatically seals 1, 3, and 6 mL SPE cartridges without the need to change the barbed rod.



Intelligent Filter Tip Handling with Automatic Filtration



- The sampling needle automatically picks up a filter tip from the filter tip module, performs filtration, and then discards the filter tip back into the module slot.

SPE Steps:

Step	Solvent	Volume (mL)	Flow Rate (mL/min)	Drying Pressure (psi)	Drying Time (s)	Gas Push
Condition	Methanol	10	3	20	0	Yes
Condition	Water	10	3	20	0	Yes
Load Sample		25	3	20	0	
Rinsing	Water	5	3	20	60	Yes
Elution	5% Formic Acid in Methanol	4	3	20	30	Yes
Elution	Ethyl Acetate	4	3	20	30	Yes
Needle Wash	Water	5	10	20	30	/
Plunger Clean	Water	5	10	20	30	/

2 g honey sample, 13 compounds, spiked recovery at 10 μg/kg

Compound	Recovery (%)						Mean (%)	RSD (%)
	1	2	3	4	5	6		
Trimethoprim	82.4	70.2	74.6	78.2	73.5	79.9	76.5	5.9
Oxolinic Acid	119.5	113.6	110.9	119.3	114.2	111.5	114.8	3.3
Flumequine	104.9	87.0	99.3	103.5	89.7	102.5	97.8	7.8
Norfloxacin	103.9	111.5	121.3	104.6	109.7	115.7	111.1	6.0
Ciprofloxacin	115.1	119.0	118.4	114.7	117.8	116.8	117.0	1.5
Pefloxacin	104.8	104.6	110.6	105.3	107.2	112.5	107.5	3.1
Cinoxacin	94.6	87.3	94.4	95.2	88.6	93.2	92.2	3.7
Lomefloxacin	100.9	104.7	108.5	101.6	105.5	109.3	105.1	3.3
Enrofloxacin	108.9	105.6	111.1	112.5	107.2	113.2	109.8	2.8
Ofloxacin	84.2	100.1	82.0	86.5	100.3	85.9	89.8	9.1
Marbofloxacin	113.2	116.5	119.8	111.5	109.8	118.2	114.8	3.4
Sarafloxacin	86.1	81.6	99.1	87.3	83.5	98.9	89.4	8.6
Difloxacin	80.5	82.3	93.7	82.7	83.5	89.5	85.4	6.0

Determination of Tetracycline Residues in Eggs

Step	Solvent	Volume (mL)	Flow Rate (mL/min)	Drying Pressure (psi)	Drying Time (s)	Gas Push
Condition	Methanol	5	3	20	0	Yes
Condition	Water	5	3	20	0	Yes
Load Sample		50	3	20	0	
Rinsing	Water	5	3	20	0	Yes
Rinsing	5% Methanol in Water	5	3	20	60	Yes
Elution	Methanol + Ethyl Acetate	10	3	20	30	Yes
Needle Wash	Water	5	10	20	30	/
Plunger Clean	Water	5	10	20	30	/

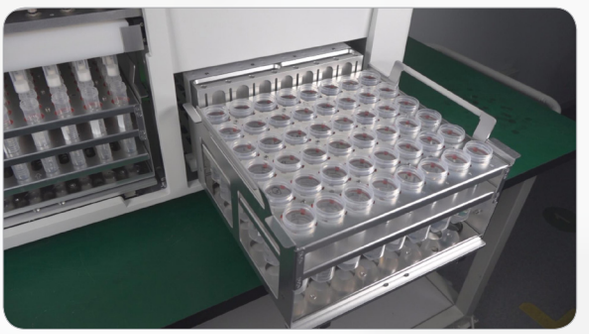
Results: 5 g egg sample, 4 compounds, spiked recovery at 50 μg/kg

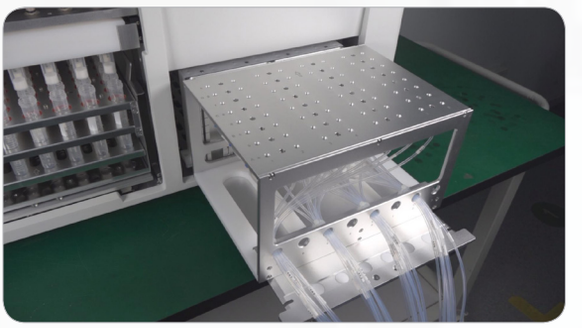
Compound	Recovery (%)		Mean (%)	RSD (%)
	1	2		
Doxycycline	80.9	89.0	85.0	6.7
Chlortetracycline	86.6	86.1	86.4	0.4
Tetracycline	90.6	82.0	86.3	7.0
Oxytetracycline	97.8	88.0	92.9	7.5

Large-Volume Water Sample Solution for Emerging Contaminants

Automatic Recognition of Large-Volume Assembly, Quick Rack Replacement

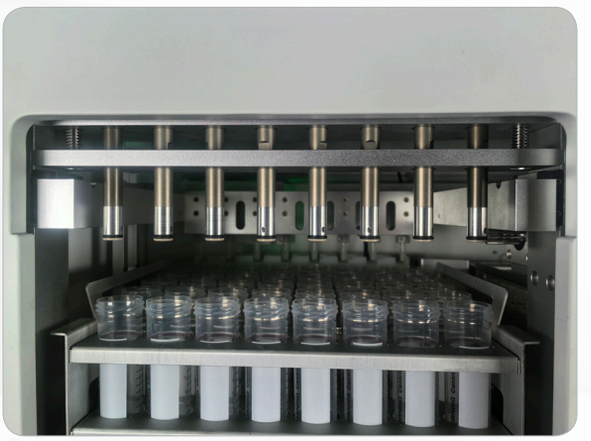
- Quick exchange of small- and large-volume sample racks. Large-volume sample racks are automatically recognized to meet the requirements of large-volume water samples.
- The assembly is equipped with plungers and filter tips, enabling complete sample loading while maintaining online filtration for water samples.





Telescopic Rod Compatible with SPE Cartridges from Various Brands

- Adaptive Cartridge Insertion Rod automatically locates the cartridge sieve plate for sealing without manual adjustment.
- Elastic sealing o-ring design accommodates SPE cartridges of the same size from different brands by varying the elastic range of the sealing o-ring.



Low Background Recovery Meets Emerging Contaminant Detection Requirements

- Instrument background meets detection requirements for PFAS, phenolic compounds, phthalates, and other emerging contaminants.
- Nitrogen-assisted solvent spray cleans the inner walls of large-volume sample bottles. Spray cleaning and elution improve the recovery of easily adsorbed substances, such as long-chain perfluorinated compounds.

Application Cases

Detection of PFAS in Water

SPE Steps:

Table 1: Solid Phase Extraction Method				
Step	Solvent	Volume (mL)	Flow Rate (mL/min)	Drying Time (s)
Condition	1% Ammonium Hydroxide in Methanol	7	3	0
	Methanol	7	3	0
	Water	10	3	0
Load Sample	-	1000	10	1200
Elute Sample Container	Methanol	7	3	0
	1% Ammonium Hydroxide in Methanol	7	3	30

500 mL surface water sample, 26 PFAS, spiked recovery at 2 ppb

Spiked Recovery Results at 2 ppb					
Compound	Target Concentration: 2 ppb			Mean (ppb)	Recovery (%)
PFHxA	2.2	2.0	1.9	2.0	101.7
PFHpA	2.2	2.2	2.1	2.2	108.3
PFOA	2.1	2.1	2.0	2.1	103.3
PFNA	2.3	2.0	2.0	2.1	105.0
PFDA	2.3	2.1	2.3	2.2	111.7
PFUnDA	1.9	1.8	1.8	1.8	91.7
PFDoDA	2.1	1.9	1.8	1.9	96.7
PFTrDA	1.6	1.6	1.7	1.6	81.7
PFTeDA	1.9	1.8	1.7	1.8	90.0
N-Methyl	2.1	2.3	2.1	2.2	108.3
N-Ethyl	2.2	2.2	2.0	2.1	106.7
PFBS	2.3	2.0	2.0	2.1	105.0
PFHxS	2.0	2.1	1.9	2.0	100.0
PFOS	1.8	1.9	1.8	1.8	91.7
PFBA	2.4	2.1	2.3	2.3	113.3
PFPeA	2.5	1.9	2.1	2.2	108.3
PFPeS	2.3	2.0	2.1	2.1	106.7
PFHpS	2.2	2.4	2.1	2.2	111.7
PFNS	1.8	1.9	1.8	1.8	91.7
PFDS	1.8	1.8	1.7	1.8	88.3
PFODA	1.7	2.4	2.3	2.1	106.7
PFHxDA	1.6	2.2	2.2	2.0	100.0
NaDONA	2.1	2.5	2.2	2.3	113.3
9Cl-PF3ONS	1.6	2.0	2.1	1.9	95.0
L-PFDoS	1.7	1.8	2.1	1.9	93.3
GeNx	2.1	2.0	2.5	2.2	110.0

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