

ION CHROMATOGRAPHY CONSUMABLES

TECHNICAL SUPPORT SERVICES

We are committed to providing you with comprehensive and professional support, services and information.

We promise to provide lifetime service before, during and after the use period of the instrument.

SHENGHAN PROVIDES

Sample testing and application consulting service;
On-site installation and commissioning;
Professional maintenance contract and maintenance service;
Instrument operation training;
Free software upgrade;
Real-time technical support through video,
telephone or e-mail;
Localization services by cooperating with local distributors .



<http://en.sheng-han.com>

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SHINE 盛瀚

Qingdao Shenghan Chromatograph Technology Co., Ltd (SHINE) is a technology service company providing ion chromatography technology. Focusing on customers, market-oriented, technology-driven, SHINE commits to providing customers with comprehensive technical services.

Technological strength is the lifeline of an enterprise. SHINE has continuously increased its R&D investment, investing no less than 10% of its annual sales in R&D and undertook "The National Major Scientific Equipment Development Projects" in 2012, 2013 and 2016, in which SHINE made a series of breakthroughs. The ion chromatographic column has reached the international leading level. SH chromatographic column is one of the two major OH-system chromatographic columns in the world.

At present, SHINE has a comprehensive range of ion chromatography related products, including ion chromatographic column, general components, sample pretreatment equipment and other consumables. We provide one-stop service of ion chromatography to make your work simpler, the operation of ion chromatography system more reliable and the analysis results more accurate.



07-Anion chromatographic column
13-Cation chromatographic column

PART 1

ION CHROMATOGRAPHIC COLUMN

17-Autosampler
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PART 3

FUNCTIONAL COMPONENTS

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Part 5

UNIVERSAL CONSUMABLES

15-Conductivity detector
15-Electrochemical detector
15-UV/VIS detector
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PART 2

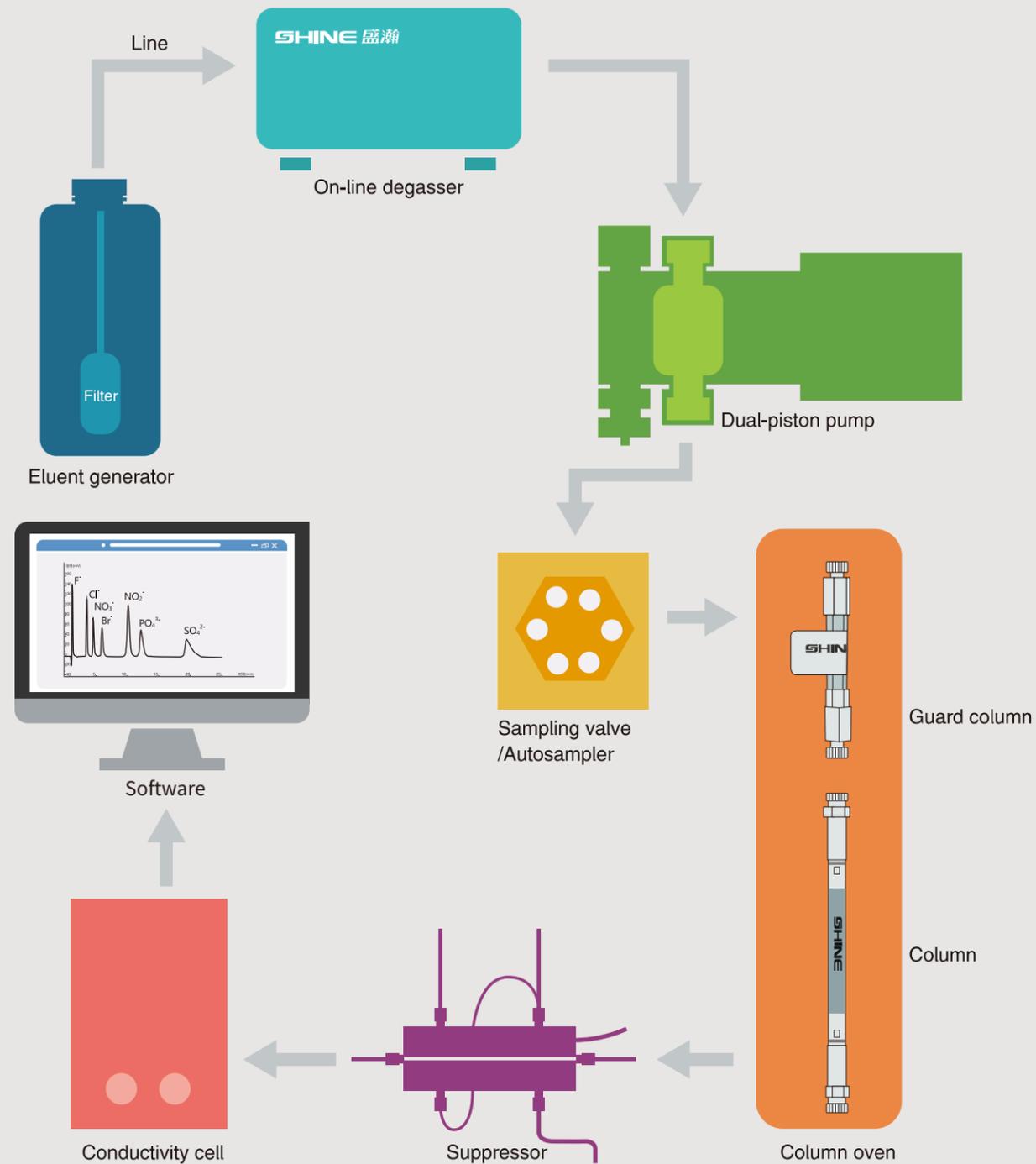
DETECTION UNIT

22-SH series pretreatment column
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24-Tube furnace
24-Sand core filtration device
25-Automatic filter unit
25-Solid phase micro-extraction

PART 4

SAMPLE PRETREATMENT

You can purchase products through this manual.



IC COLUMN
THE ONLY COMPANY IN CHINA THAT CAN BE ADOPTED IN
MASS-PRODUCE OF ION CHROMATOGRAPHIC COLUMNS

THE ONLY COMPANY IN CHINA THAT CAN BE ADOPTED IN MASS-PRODUCE OF ION CHROMATOGRAPHIC COLUMNS

Qingdao Shenghan Chromatograph Technology Co., Ltd.(SHINE) has been developing ion chromatographic column since 2008. As the only enterprise in China, it can realize mass production of IC column. Professional R&D team and advanced production technology ensure that you can get IC column with good reproducibility and separation effect at any time. At present, the excellent performance of SHINE SH series columns can provide different choices for users' daily detection and method development, and can reduce users' operation and maintenance costs by about 35%.

SHINE is the second company in the world that has successfully developed and mass-produced hydroxide system columns, breaking the monopoly of imported brands for more than ten years.

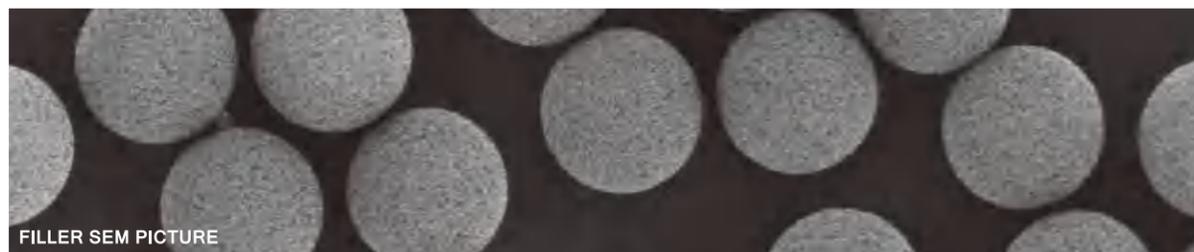
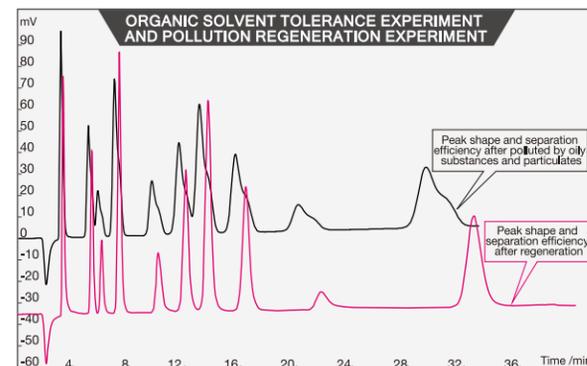
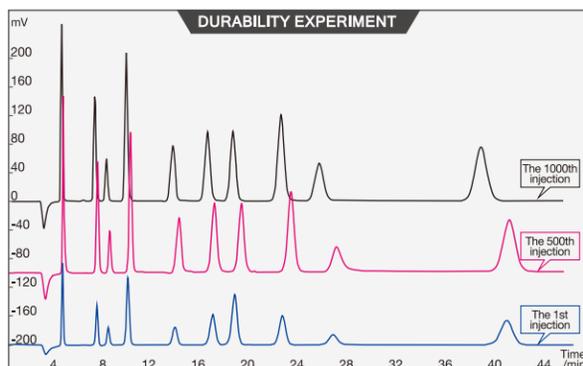
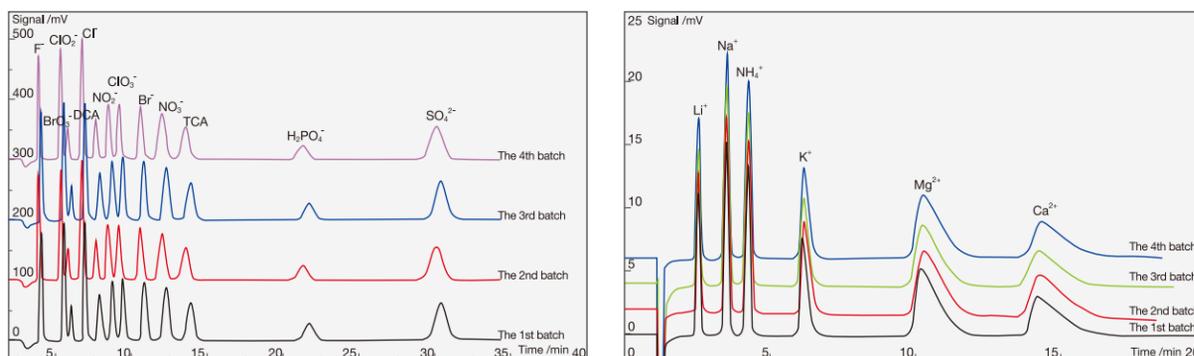
SH series columns using polymer-based spheres as matrix, our company's unique stationary phase bonding technology and polymer-based sphere surface treatment technology. The peak shape, separation, stability and reproducibility of SH series chromatographic columns are excellent.

SH SERIES ION CHROMATOGRAPHIC COLUMN

THE MOST UNIVERSAL CHROMATOGRAPHIC COLUMN /

- > The first choice for developing or improving IC methods;
- > Excellent performance and stable polymer stationary phase;
- > Complete batch tracking and reproducibility;
- > The only mass-produced IC column in China;
- > It has wide applicability and can be widely applied to domestic and imported brand IC.

EXCELLENT BATCH REPRODUCIBILITY /



FILLER SEM PICTURE



COLUMN DETAILS PICTURE

HARDWARE /

- > Very low diffusion hardware;
- > Innovative technic of sieve plate.

FILLER /

- > High mechanical strength particles;
- > Advanced particle Sieving Technology;
- > Selectivity between batches remains stable;
- > Innovation of porous base ball manufacturing technology to provide super high exchange capacity;
- > Unique surface treatment technology for packing.



PRODUCTION TECHNIC /

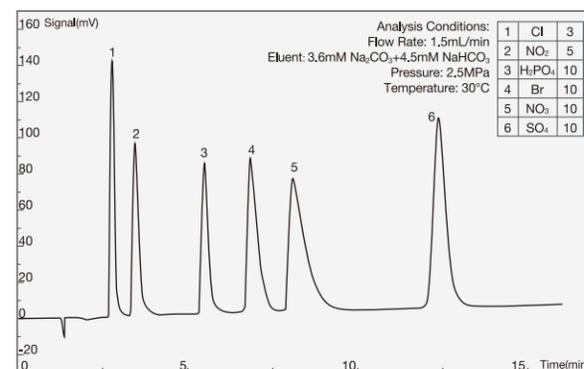
- > The mechanical stability and pressure resistance of the column bed are up to 300 bar;
- > Advanced packing technology and equipment for column.



ANION CHROMATOGRAPHIC COLUMN

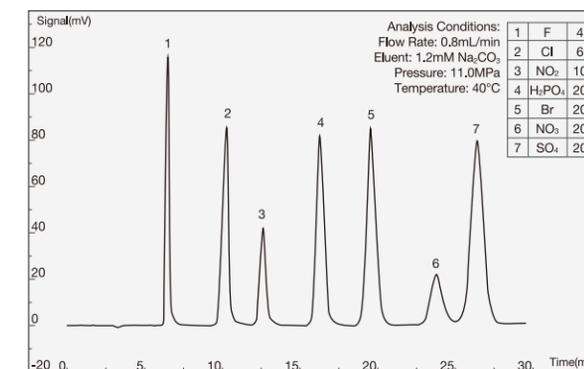
SH-AC-1 COLUMN/ 4.6*250MM/

> A basic anion column, using carbonate system eluent, can simultaneously analyze 6 kinds of common anions: Cl⁻, Br⁻, NO₂⁻, NO₃⁻, H₂PO₄⁻, SO₄²⁻. With fast analysis speed and high cost performance, it is suitable for environmental protection, cement and other industries.



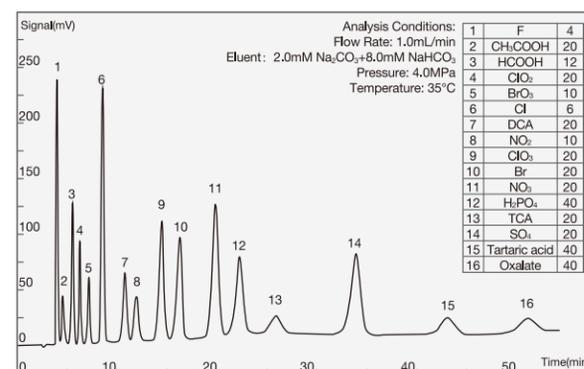
SH-AC-9 COLUMN/ 4.6*250MM/

> A hydrophilic anion column, using carbonate system eluent, can simultaneously analyze 7 kinds common anions: F⁻, Cl⁻, Br⁻, NO₂⁻, NO₃⁻, H₂PO₄⁻, SO₄²⁻. With good separation of water negative peak and the F⁻ peak, it is suitable for electronic and electrical, petrochemical, environmental, metallurgical and other industries.



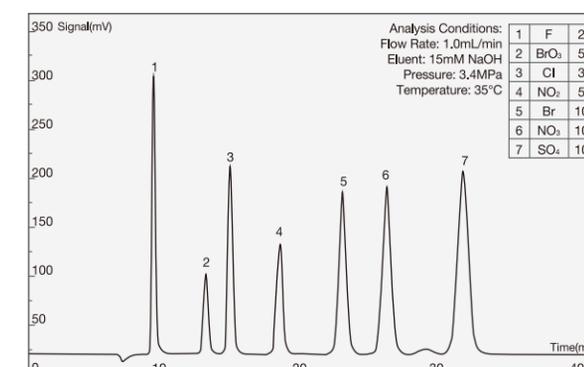
SH-AC-3 COLUMN/ 4.0*250MM/

> An anion column with high efficiency, using carbonate system eluent. It can simultaneously analyze 7 kinds of common anions (F⁻, Cl⁻, Br⁻, NO₂⁻, NO₃⁻, H₂PO₄⁻, SO₄²⁻), disinfection by-products (BrO₃⁻, ClO₂⁻, ClO₃⁻, dichloroacetic acid DCA, trichloroacetic acid TCA) and other anions, especially for the analysis of halogenates containing oxygen and is suitable for various industries such as disease control, food, environment, metallurgy, geology and so on.



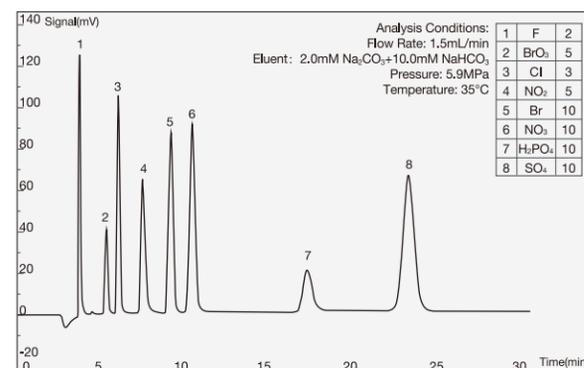
SH-AC-11 COLUMN /4.6*250MM /

> An anion column with high efficiency, using hydroxide system eluent. It can simultaneously analyze 7 kinds of common anions (F⁻, Cl⁻, Br⁻, NO₂⁻, NO₃⁻, PO₄³⁻, SO₄²⁻), disinfection by-products (BrO₃⁻, ClO₂⁻, ClO₃⁻, dichloroacetic acid DCA, trichloroacetic acid TCA) and other anions. With good peak shape, gradient elution, higher sensitivity and wider application scope, it is suitable for drinking natural mineral water, packaging drinking water, drinking water and other industries.



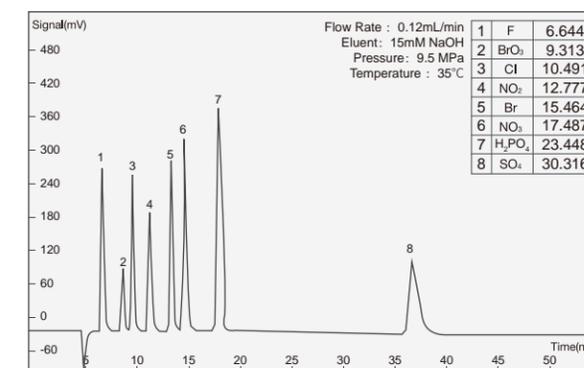
SH-AC-4 COLUMN/ 4.6*250MM/

> A universal anion column, using carbonate system eluent, can simultaneously analyze F⁻, Cl⁻, Br⁻, NO₂⁻, NO₃⁻, H₂PO₄⁻, SO₃²⁻, SO₄²⁻, BrO₃⁻. With low pressure and fast analysis speed, it is suitable for food, environment, metallurgy, geology and other industries.



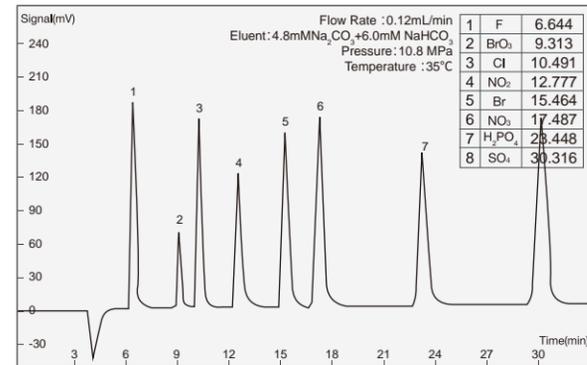
SH-AC-19 COLUMN /2.1*200MM /

> A microbore anion column, using hydroxide system eluent. With fine particle diameter, low flow rate and high signal response value, it can simultaneously analyze 8 kinds of anions: F⁻, BrO₃⁻, Cl⁻, NO₂⁻, Br⁻, NO₃⁻, PO₄³⁻.



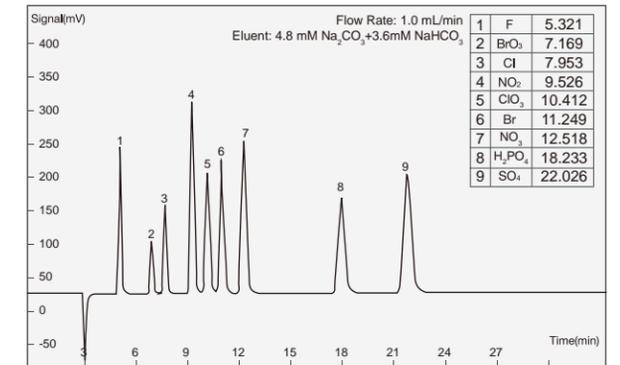
SH-AC-20 COLUMN /2.1*200MM /

> A microbore anion column, using carbonate system eluent. With fine particle diameter, low flow rate and high signal response value, it can simultaneously analyze 8 kinds of anions: F⁻, BrO₃⁻, Cl⁻, NO₂⁻, Br⁻, NO₃⁻, H₂PO₄⁻, SO₄²⁻.



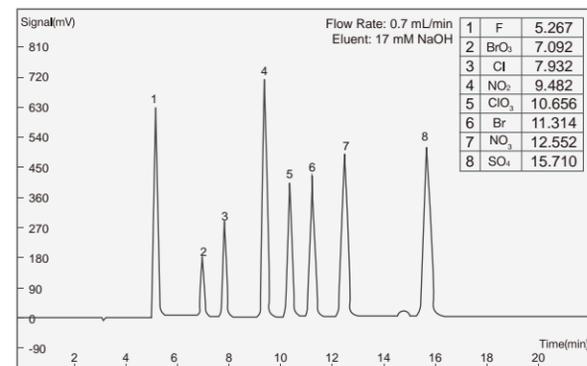
SH-AP-2 COLUMN/4.0*250MM /

> An anion column with PEEK tube. Using carbonate system eluent, it can analyze 7 common anions: F⁻, Cl⁻, NO₂⁻, Br⁻, NO₃⁻, H₂PO₄⁻, SO₄²⁻, and some disinfection by-products.



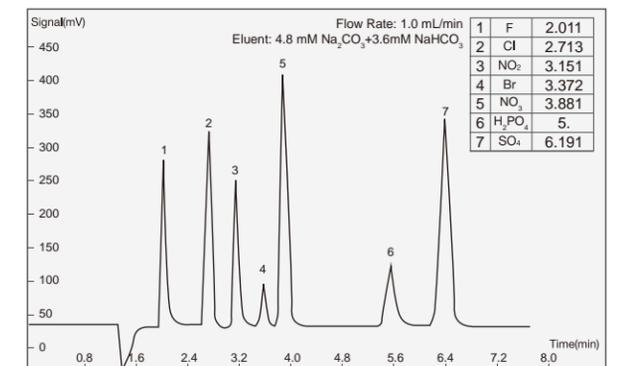
SH-AP-1 COLUMN /4.0*250MM /

> An anion column with PEEK tube. Using hydroxide system eluent, it can be equipped with eluent generator to analyze 7 kinds of common anions (F⁻, Cl⁻, NO₂⁻, Br⁻, NO₃⁻, H₂PO₄⁻, SO₄²⁻) and some disinfection by-products.



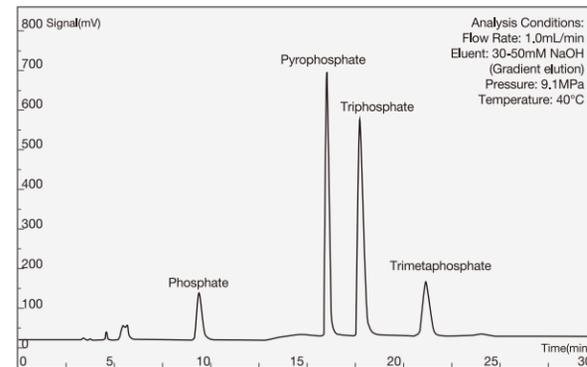
SH-AP-3 COLUMN/4.0*150MM /

> A rapid anion column with PEEK tube. Using carbonate system eluent, it can analyze 7 common anions (F⁻, Cl⁻, NO₂⁻, Br⁻, NO₃⁻, H₂PO₄⁻, SO₄²⁻) rapidly.



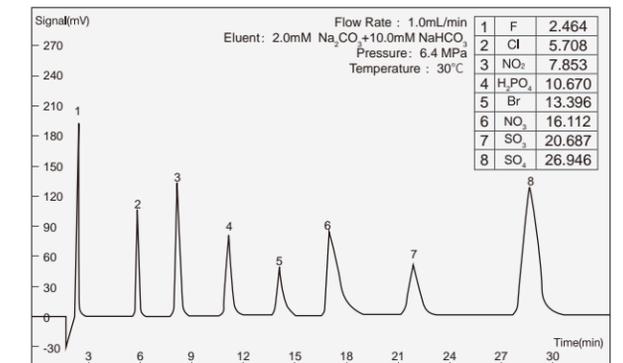
SH-AC-16 COLUMN /4.6*250MM /

> A special anion column for polyphosphates, using hydroxide system eluent, mainly used to analyze polyphosphates in aquatic products.



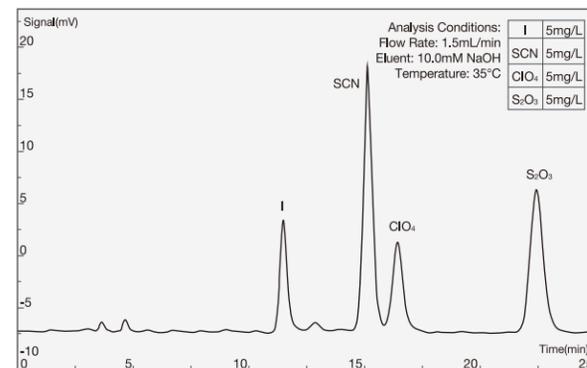
SH-AC-18 COLUMN/4.6*250MM /

> A hydrophilic anion column with alkyl quaternary amine as the filler and carbonate as the eluent. Simultaneously analyzing 7 kinds of common anions: F⁻, Cl⁻, NO₂⁻, Br⁻, NO₃⁻, PO₄³⁻ and SO₃²⁻. It especially good at separating SO₃²⁻.



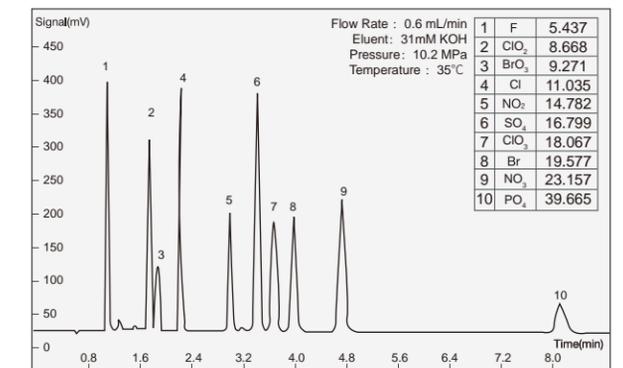
SH-AC-17 COLUMN /4.6*250MM /

> A special anion column for I⁻ with conductivity method, using hydroxide system eluent. It is mainly applicable to the analysis of I⁻, SCN⁻ and S₂O₃²⁻ in the environment, solid waste and other industries.



SH-AC-22 COLUMN/4.0*250MM /

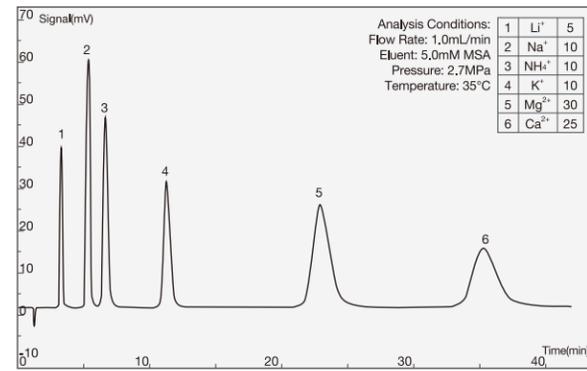
> An anion column with large capacity and high resolution, using hydroxide system eluent. It is suitable for high resolution analysis of conventional anions and analysis of disinfection by-products. With the use of the eluent generator, the detection and analysis of fluoride in complex matrix such as fruit juice or tea, the analysis of some weakly retained small molecular organic acids in the complex matrix, and the analysis of nitrite in nitrite injection in the pharmacopoeia can be completed.



CATION CHROMATOGRAPHIC COLUMN

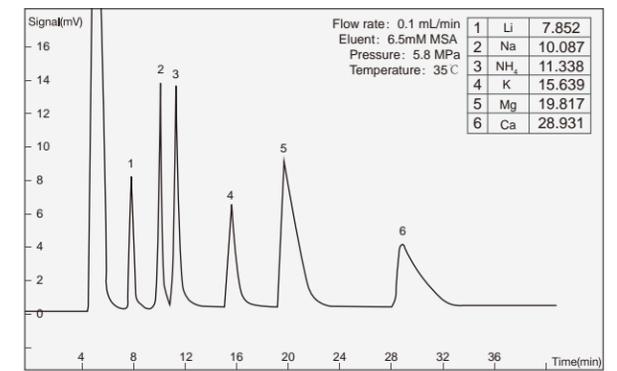
SH-CC-3 COLUMN /4.6*100MM /

> A universal cation column, is mainly used to analyze 6 kinds of common cations (Li^+ , Na^+ , NH_4^+ , K^+ , Mg^{2+} , Ca^{2+}). With well separability of Na^+ and NH_4^+ and low tailing factor of Mg^{2+} and Ca^{2+} , it is suitable for environmental, water quality, medical, food and other industries.



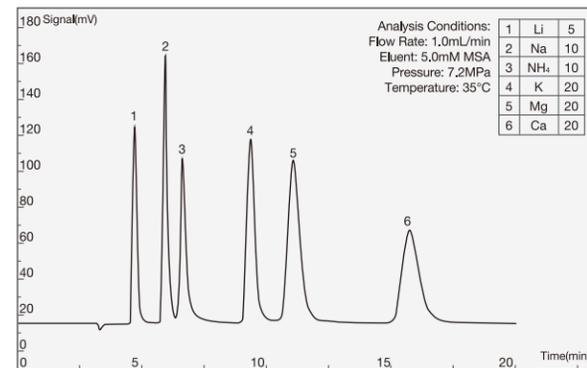
SH-CC-7 COLUMN/2.1*200MM /

> A microbore weak acid cation column. With fine particle diameter, low flow rate and high signal response value, it can detect 6 kinds of conventional cations at low concentration and greatly reduce the consumption of eluent.



SH-CC-4 COLUMN /4.0*200MM /

> A multifunctional cation column with MSA eluent. It can analyze 6 kinds of cations: Li^+ , Na^+ , NH_4^+ , K^+ , Mg^{2+} , Ca^{2+} . With low tailing factor of Mg^{2+} and Ca^{2+} and 100% acetone tolerance, it is suitable for cationic analysis in environmental, water quality, medical, food and other industries.



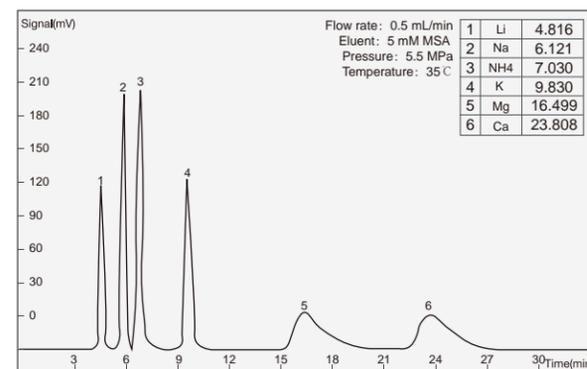
SH-G-1 COLUMN /4.6*50MM /

> A universal guard column. It can filter the insoluble solid particles in mobile phase and sample, prevent column from being polluted and prolong the life of column.



SH-CC-6 COLUMN/3.0*250MM /

> A weak acid cation column with MSA eluent; It is used for the determination of monovalent alkali metals, ammonium salts, divalent alkaline earth metals and choline.



SH-GP-2 COLUMN/4.0*50MM /

> A universal guard column with PEEK tube. It can filter the insoluble solid particles in mobile phase and sample, prevent column from being polluted and prolong the life of column.



CONDUCTIVITY DETECTOR

> The conductance detector continuously detects the conductivity of the eluate by loading voltage on the two electrodes in solution. The patented design of constant temperature conductivity detector can reduce the influence of temperature change, shield electromagnetic interference, increase signal response, and reduce baseline fluctuation and drift. The communication connection is carried out through COM port which is convenient for disassembly.

> Parameter

Measurement Range	Output Voltage	Baseline Noise	Baseline Drift	Maximum Pressure	Cell Volume
0-45000 μ S	\pm 6000mV	\leq 0.05%FS	\leq 3%FS/30min	10MPa	\leq 0.5 μ L



ELECTROCHEMICAL DETECTOR

In the case of applied voltage, the electrochemical detector detects the change of current caused by the redox reaction of the substance to be measured on the electrode surface. Electrochemical detector is often used to analyse ions with low dissociation, which are difficult to detect with conductivity detectors and have electrical activity.

- > Unique noise reduction technology
- > Built-in Faraday shielded temperature oven
- > Applicable to IC, HPLC and UHPLC
- > With DC, PULSE and SCAN mode
- > Different flow cells to cover every application

> Parameter

Type	Working Electrode	Signal Range	Noise	Potential Range	Analog Output (DAC)	Analog Output (I/E)	Data Rate	Detectable Substance
DC mode	Silver electrode	10pA-200uA in 1.2.5 increments	<2pA	2.50V to+2.50V with 10 mV increments	1 to +1 V	-2.5to +2.5V	1-100 Hz in 1, 2, 5 increments	CN ⁻ , I ⁻ , Br ⁻ , S ²⁻
PULSE mode	Gold electrode	10nA-200uA in 1.2.5 increments		-2.50Vto+2.50V with 10 mV increments			1Hz Scan rate 1-100 mV/s in 1, 2, 5 increments	Sugar,aliphatic, amine,aldehyde amino sugar



UV/VIS DETECTOR

The UV/VIS detector 40D is a competitively priced IC/HPLC spectrophotometer for routine IC/HPLC applications including fast IC/LC methods. Besides offering excellent technical specifications, this robust detector features a highly flexible and compact design. The BlueShadow Detector 40D comes with an installed deuterium lamp which covers a wavelength range from 190 to 750 nm. This detector can be controlled with ClarityChrom® software, as well as from the touchscreen (stand-alone operation), via LAN, via RS-232, or through analog input/output. Due to a smart design the flow cell is easily accessible and can be changed very quickly. You can choose between a wide range of flow cells for analytical or preparative IC/ LC applications with flow rates from 10 μ L/min up to 10 L/min.

> Parameter

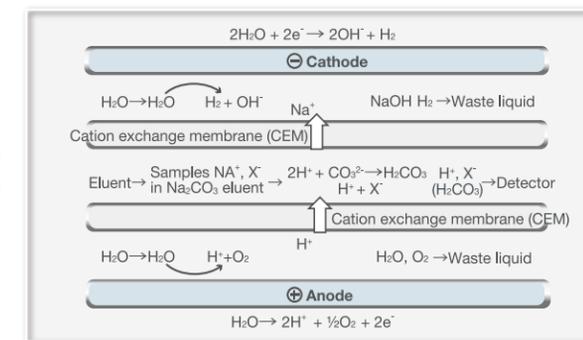
Noise	Drift	Detection channels	Spectral bandwidth	Wavelength accuracy	Wavelength precision
\pm 15 μ AU at 254 nm	300 μ AU/h at 254nm	1	11 nm	\pm 2.5 nm	0.3 nm



SUPPRESSOR

PRINCIPLE /

> Suppressor produces H⁺ and OH⁻ through electrolysis of water at the electrode, and under the combined action of electric field and ion exchange membrane, it can realize the directional migration and exchange of ions. It reduces the background conductance, improves the sensitivity of ions to be measured, and makes the "counter ion" in the sample enter the waste liquid.



Principle diagram of anion suppressor

SELF-REGENERATING ELECTROLYTIC MICRO-MEMBRANE SUPPRESSOR /

- > With advanced continuous regenerative membrane electric suppression technology, it doesn't need add acid or alkali to regenerate;
- > High suppression capacity, low background conductance, low noise, stable baseline and maintenance free;
- > Anti pollution, high pressure resistance and long life;
- > Compatible with 100% organic solvents;
- > It can match various types of ion chromatography products;
- > The signal line is connected by aeronautical connector, which is convenient for disassembly and assembly.

> Parameter

Model	Type	Current	Eluent	Pressure Resistance	PH Range	Dead Volume
SHY-A-6	Anion	0-300mA	CO ₃ ²⁻ /HCO ₃ ⁻ /OH ⁻	6MPa	0-14	< 50 μ L
SHY-C-5	Cation	0-300mA	MSA	6MPa	0-14	< 50 μ L



MINIATURE SELF-REGENERATING ELECTROLYTIC MICRO-MEMBRANE SUPPRESSOR /

- > It is suitable for microbore and low flow column, with small dead volume;
- > With advanced continuous regenerative membrane electric suppression technology, it doesn't need add acid or alkali to regenerate;
- > Anti pollution, high pressure resistance and long life;
- > Compatible with 100% organic solvents;
- > It can match various types of ion chromatography products;
- > The signal line is connected by aeronautical connector, which is convenient for disassembly and assembly.

> Parameter

Model	Type	Current	Eluent	Pressure Resistance	PH Range	Dead Volume
SHY-A-6S	Anion	0-300mA	CO ₃ ²⁻ /HCO ₃ ⁻ /OH ⁻	4MPa	0-14	< 30 μ L
SHY-C-6S	Cation	0-300mA	MSA	4MPa	0-14	< 30 μ L



AUTOSAMPLER

> With the continuous development of ion chromatography, its application field is expanding, and the number of samples to be tested is also increasing rapidly. Ion chromatograph with autosampler can realize sampling automation without manual duty, greatly improve work efficiency, and greatly avoid the interference of human errors on the results.

DISC AUTOMATIC SAMPLER /

> SHA-7 is a basic disc autosampler, which is very simple to operate. The sample tray uses open design to be directly observed. The large-capacity sample tube can be cleaned sufficiently, which improves the analysis accuracy.

> Parameter

Model	Sample Tray Style	Sample Number	Maximum Injection volume	Sampling Method	Injection Reproducibility
SHA-7	Disc	13mLx39	500μL	Full quantitative loop	RSD<0.25%



THREE DIMENSIONAL AUTOMATIC INJECTOR /

> SHA-15 is a three-dimensional autosampler with multiple sampling modes, built-in sample tray, which can effectively prevent pollution caused by external dust. The instrument has a partial sampling mode, one standard liquid can complete the standard curve test, reducing the workload of operators. The sample tray has various specifications to meet the needs of different samples.

> Parameter

Model	Sample Tray Style	Sample Number	Maximum Injection volume	Sampling Method	Injection Reproducibility
SHA-15	Three dimensional	2mlx108	500μL	Full quantitative loop	Full quantitative loop RSD≤0.25%
				Partial sampling	Partial sampling RSD≤0.5%
				Micro injection	Micro injection RSD≤0.8%



SINGLE/DUAL CHANNEL AUTOSAMPLER /

> SHA-16 is a universal autosampler, which uses the most advanced sampling technology to achieve rapid sampling and rapid rinsing. It uses an efficient and multi-solvent needle-washing procedure to completely eliminate the residual sample, and the sample can be really cooled at 4 C.

> Parameter

Model	Sample Tray Style	Sample Number	Maximum Injection volume	Sampling Method	Inject on Reproducibility
SHA-16	Three dimensional	2mLx96	500μL	Full loop injection	Full loop injection(RSD ≤0.3%)
				Partial loop injection	Partial loop injection(RSD ≤ 0.5%)
				μL pick up injection	μL pick up injection(RSD ≤ 1%)
				Carry-over	Carry-over: < 0.05%



SIX-WAY INJECTION VALVE

> The six-way valve is the most ideal sampler for IC and HPLC. It is composed of a circular sealing pad (rotor) and a fixed base (stator). It has the characteristics of simple structure, convenient to use, long service life and no maintenance in daily life.

MANUAL SIX-WAY INJECTION VALVE /

> VI-11 manual six-way injection valve is a universal injection valve, which is widely used in IC and LC. Cutting valve continuous flow design is adopted to avoid the impact of instantaneous pressure on the system. With excellent performance and long life, it can ensure continuous injection of 30,000 times.

> Parameter

Model	Valve Switching Mode	Maximum Pressure	Outer Diameter of Tube	Rotor Sealing Material	Contact Material of Medium
VI-11	Manual	35MPa	φ1/16"	peek /ceramic /stainless steel	peek



ELECTROMAGNETIC SIX-WAY SAMPLING VALVE /

> VF-02 electromagnetic six-way injection valve is an electrically driven automatic injection valve. It uses stepping motor to control position switching of valve. It has compact structure and superior performance. Both automatic and manual can be used independently and can be used as automatic sampling valves in chromatographic industry or as flow path switching valves. The space occupancy is small and the connection and control are made from the front side, which is convenient to install and use. The contact material of medium is peek, which can minimize the ion pollution. The ceramic seal improves the life of the sealing ring up to 100 thousand times.

> Parameter

Model	Valve Switching Mode	Maximum Pressure	Outer Diameter of Tube	Rotor Sealing Material	Contact Material of Medium	Drive Power Supply
VF-02	Stepping motor	35MPa	φ1/16"	peek/ ceramic /stainless steel	peek	24V DC



ELUENT GENERATOR

> The eluent generator is the core technology of the new generation reagent-free ion chromatograph. It realizes the function of generating the required concentration of eluent on-line only by adding pure water, eliminating the time-consuming operation of manual preparation of eluent, which greatly improves the automation of analysis and avoids the test error caused by human factors. At the same time, the intelligent control method can realize the self-defined setting of the concentration, the gradient elution and separation operation of complex samples that can not be completed by the isocratic pump, which further improves the accuracy of the analysis.



ELUENT GENERATOR CARTRIDGE /

> The eluent generator cartridge is the replacement consumable of the eluent generator. The eluent is replaced with the electrode to prevent leakage. It is connected by aeronautical connector and peek connector, which is convenient for disassembly and assembly.



TRAP COLUMN /

> The Trap column can continuously remove the ionic contaminants in the eluent, thus achieving low drift during gradient operation.



INFUSION PUMP

HIGH PRESSURE INFUSION PUMP (STAINLESS STEEL) /

> High-pressure and low-pulse dual-piston tandem advection pump is made of stainless steel, which can achieve stable flow control without damper. The product adopts 32-bit embedded microprocessor with ARM7 core, electronic pressure fluctuation suppression technology, and high-precision DC servo motor, to realize the combinatorial analysis mode of isocratic, binary, quaternary gradient and micro-analysis, which is suitable for trace analysis in scientific research and special industries.

> Parameter

Model	Material	Flow Range	Pressure Range	Flow Velocity Reproducibility	Transfusion Structure	Pipeline Specification	System Protection	Power Supply
SH-100A	Stainless steel	0.001-9.999 mL/min	0-42MPa	<0.2%	Dual-piston tandem	1/16"	Maximum pressure setting protection	24V DC



HIGH PRESSURE INFUSION PUMP (PEEK) /

> High-pressure and low-pulse dual-piston tandem advection pump is made of peek material, which can achieve stable flow control without damper. It can realize the combinatorial analysis mode of isocratic, binary, quaternary gradient and micro-analysis, and automatic piston rod cleaning and maintenance-free function, which is suitable for trace analysis in scientific research and special industries.

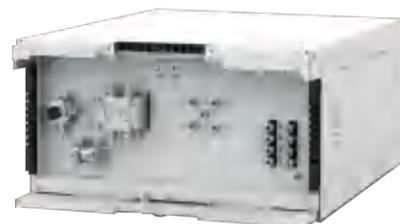
> Parameter

Model	Material	Flow Range	Pressure Range	Flow Velocity Reproducibility	Transfusion Structure	Pipeline Specification	System Protection	Power Supply
SH-120A	peek	0.001-9.999 mL/min	0-36MPa	<0.1%	Dual-piston tandem	1/16"	Maximum pressure setting protection	24V DC



QUATERNARY GRADIENT PUMP

The quaternary gradient pump uses technology to overcome the challenges of pumping IC/LC solvents at high pressure with low pulsation and is designed to fulfil the needs for low pressure mixing tasks. It contains one high-pressure pump and an integrated LPG mixing block with a 4 channel valve and the new developed mixer, a low-volume mixing device. The integrated degasser and inline filter are completing the analytical IC/HPLC pump and turn this pump into a working horse in the lab. For biocompatible applications or ion chromatography, this pump is also available with a complete metal-free design.



> Parameter

Pump head	Flow rate range	Maximum delivery pressure	Mixing volume	Flow rate increment	Pump head material
10mL	0.001-10mL/min	5800 psi/400bar /40 Mpa	200μL	0.001mL/min	Ceramic

ON-LINE DEGASSING DEVICE

The bubbles are formed by dissolving or mixing air in the mobile phase solution, and noise peaks appear on the chromatogram when the bubbles enter the detector. When the bubbles enter the flow path or column, the flow velocity of the mobile phase becomes slower and unstable, resulting in fluctuation of the baseline. In the on-line degassing device, there is a transfusion tube made of porous synthetic resin film, which has a vacuum container outside. When the mobile phase passes through the transfusion tube, oxygen, nitrogen, carbon dioxide and so on will be removed from the inside of the membrane into the outside.

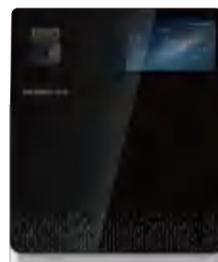


> Parameter

Model degassing	Degassing Efficiency (dissolved oxygen)	Vacuum Pressure	Maximum Flow	Internal Volume
SHT-3	Flow 1.0mL/min>70%;	-75kPa	10mL/min	300μL

POST-COLUMN DERIVATIZATION

Connected with HPLC and equipped with derivative reagent, it can detect glyphosate, aminomethylphosphonic acid, paraquat, amino acids, biological polyamines, streptomycin, carbamate insecticides, amino sugar antibiotics, aflatoxin, polyether antibiotics, formaldehyde, cholesterol and other samples.



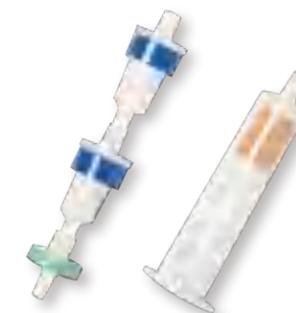
> Parameter

Maximum Pressure	Flow Range	Flow stability	Temperature Control Range	Protection Temperature	Volume
36 MPa	0.001 mL /min-9.999 mL /min	≤ 1%	Room temperature + 5-100 °C	100 °C	0.1-3mL

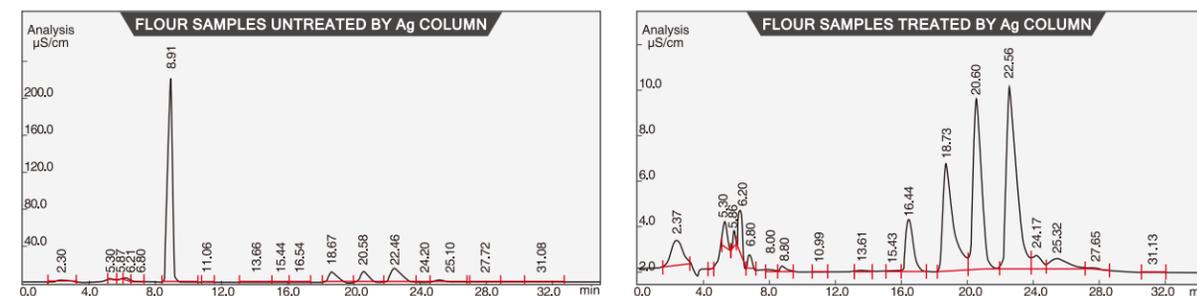
SH SERIES PRETREATMENT COLUMN

WHY SHOULD SAMPLES BE PRETREATED?

> In the process of analysis, the impurity interference, organic matter or metal ions in the sample will pollute the packings of column, reduce the separation ability and service life of the column, and the impurity ions will interfere with the separation of ions. So the sample pretreatment column should be used. It can effectively remove the organic matter and impurity ions in the sample, avoid the contamination of impurities on the column and the influence on the separation effect, effectively prolong the service life of the column and improve the separation effect of the sample.



COMPARISON OF FLOUR SAMPLES BEFORE AND AFTER TREATED BY SH-Ag COLUMN:



ORDERING INFORMATION/

Name	Specifications	Impurity Removal Mechanism	Application	Packaging Specification
SH IC-C18	1cc/2.5cc	Inverse adsorption mechanism	Remove hydrophobic compounds, which is not applicable to sample with too high or too low pH values	50pieces/packet
SH IC-RP	1cc/2.5cc	Inverse adsorption mechanism	Remove hydrophobic compounds, especially unsaturated compounds and aromatic compounds, which is applicable to sample with pH values ranging from 0 to 14.0	50pieces/packet
SH IC-P	1cc/2.5cc	Inverse adsorption mechanism	It has same function as RP and good selectivity for polar substances.	50pieces/packet
SH IC-H	1cc/2.5cc	Ion exchange	Remove alkali earth metal ions, transitional metal ions, and carbonate ions, and neutralize the strongly alkalinity of sample	50pieces/packet
SH IC-Na	1cc/2.5cc	Ion exchange	Remove alkali earth metal ions and transitional metal ions in sample	50pieces/packet
SH IC-Ag	1cc/2.5cc	Ion exchange	Remove Cl ⁻ , Br ⁻ , I ⁻ , AsO ₄ ³⁻ , CrO ₄ ²⁻ , CN ⁻ , MoO ₄ ²⁻ , PO ₄ ³⁻ , SeO ₃ ²⁻ , SO ₃ ²⁻ , SeCN ⁻ , S ²⁻ , SCN ⁻ , WO ₄ ²⁻ etc.	50pieces/packet
SH IC-Ba	1cc/2.5cc	Ion exchange	Remove SO ₄ ²⁻ . If the anion concentration of the sample is low, it needs to be activated with Cl ⁻ solution, and the pH value is stable at 1-14.	50pieces/packet
SH IC-HCO ₃	1cc/2.5cc	Ion exchange	Remove anionic pollutants and neutralize strong acidity of sample	50pieces/packet
SH IC-Ag/H	2.5cc	Ion exchange	Function equivalent to series use of Ag and H columns	50pieces/packet
SH IC-Ag/Na	2.5cc	Ion exchange	Function equivalent to series use of Ag and Na columns	50pieces/packet
SH IC-Ba/H	2.5cc	Ion exchange	Function equivalent to series use of Ba and H columns	50pieces/packet
SH IC-M	1cc/2.5cc	Chelating mechanism	Remove alkali earth metal ions, alkali and transitional metal ions	50pieces/packet

NEEDLE FILTER

> Disposable needle filter is a fast, convenient and reliable filter commonly used in the laboratory. With beautiful appearance, light weight and high cleanliness, it mainly used for sample pre-filtration and particulate matter removal. It is the first choice for filtering small samples of IC, HPLC and GC. Each batch of needle filters are tested by ion chromatography. Testing the 1 mL pure water passed through the filter, the results showed that the ion dissolution level reached the level of ion chromatography analysis.



> Parameter

Sample	Filter Material	Aperture	Effective Filtration Area	Processing Capacity	Shell
Water	PES	0.22μm 0.45μm	1.0cm ²	<10ml	Polypropylene
Organic	Nylon	0.22μm 0.45μm	1.0cm ²	<10ml	Polypropylene

OXYGEN BOMB COMBUSTION SAMPLE PROCESSING DEVICE

Oxygen bomb combustion sample processing device is a pretreatment device for the analysis of non-metallic elements in organic samples. The samples are burned in a airtight pure oxygen system. The components to be measured are released from the sample and absorbed by the absorbent liquid placed in the oxygen bottle. Then the absorbent liquid can be analyzed by IC. It is widely used in quantitative analysis of heavy metals and harmful halogen elements in electrical plastics products and circuit boards.



> Quantitative decomposition of halogen, S and volatile metals such as Hg, As and Cd;

> It can absorb flammable samples in liquid medium;

> Pressure vesse made of high grade special stainless steel.

> Parameter

Model	Withstand Pressure	Oxygen Bomb Airtight	Weight	Ignition Power Supply
YCY-4	20MPa	3.5MPa	2kg	0-3V AC safety voltage

TUBE FURNACE

ADSORBABLE ORGANIC HALOGEN (AOX) FURNACE/

> In the determination of adsorbable organic halogen AOX, organic chlorine, organic fluorine and organic bromide in water and sewage, acticarbon is used to adsorb organic halogen compounds in water. Then the activated carbon is put into the high temperature furnace to burn, decompose and converted into hydrogen halide (hydrogen of fluorine, chlorine and bromine). It is absorbed by alkaline aqueous solution and determined by ion chromatography.

>> Parameter

Model	Temperature	Heating Area	Heating Rate	Fluctuation	Power
AOX-C	100-1150°C	200cm	≤50°C/min	±1°C	1.5KW



SAND CORE FILTRATION DEVICE

Under the action of the vacuum pump, the sample is treated by flowing from the above glass through the sand core filter membrane into the conical bottle below. This is the ideal choice for vacuum filtration and degassing of IC solvent and mobile phase.

> The sand core filter is made of 100% borosilicate glass, which can resist the corrosive solvent;

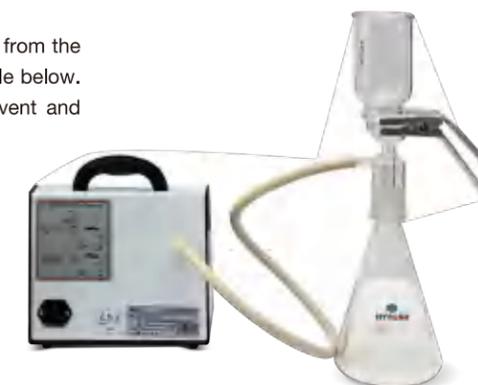
> It can filter out solid particles and bacteria in the sample;

> The no-oil degassing pump can reduce pollution of oil gas to samples;

> It is used in chemical analysis, hygienic inspection, environmental monitoring, biological products, pharmaceutical industry, scientific research and so on.

> Parameter

Material	Filter Cup Volume	Conical Bottle Capacity	Membrane	Vacuum Pressure
Borosilicate glass	250mL	1L	0.22μm/0.45μm	≥80kPa



AUTOMATIC PRESSURE FILTER UNIT

- > For the extraction of liquid from high viscosity and wet solid samples, ordinary filtration methods can not meet the requirements. The pressure filter device uses gas drive, which can effectively complete the pressure filter treatment of solid samples such as mud logging, solid waste and so on.



SOLID PHASE MICRO-EXTRACTION

- > Solid phase micro-extraction (SPME) is a new extraction and separation technology developed on the basis of solid phase extraction ,which commercialized in 1993. The quartz optical fibers in syringe needles are used as carriers, and the stationary phase is coated on the surface. Quartz fibers in the needles were pushed out to enrich and extract the substances when the samples were tested. After completing the extraction, the fibers are pulled back into the needles and directly inserted into the gas chromatographic sampling inlet for heating and analysis, then separated and detected in the chromatographic column.



ADVANTAGE/

- > Simple structure, simple operation, fast, efficient and sensitive;
- > Avoid using organic solvents;
- > It integrates sampling, extraction, concentration and injection, which is easy to carry, and realizes on-site collection and enrichment of samples;
- > It can be used in conjunction with GC, LC, GCMS and LCMS .Both manual and automatic operation are feasible.

ANALYSIS AREA/

- > It is suitable for environmental, food, medicine, forensic and biochemical analysis, speciation analysis of metal and quasi-metal compounds, etc.



Filter membrane



High pressure eluent bottle



Peek connector



Sample vial



Eluent filter



Eluent bottle



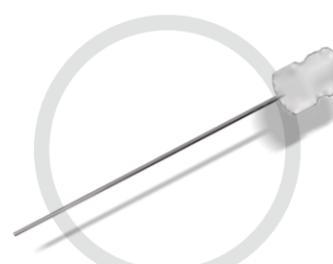
External column heater



Sample storage bottle



Injector



Injection needle



Pipette



Peek tube