



COMPREHENSIVE MANUAL

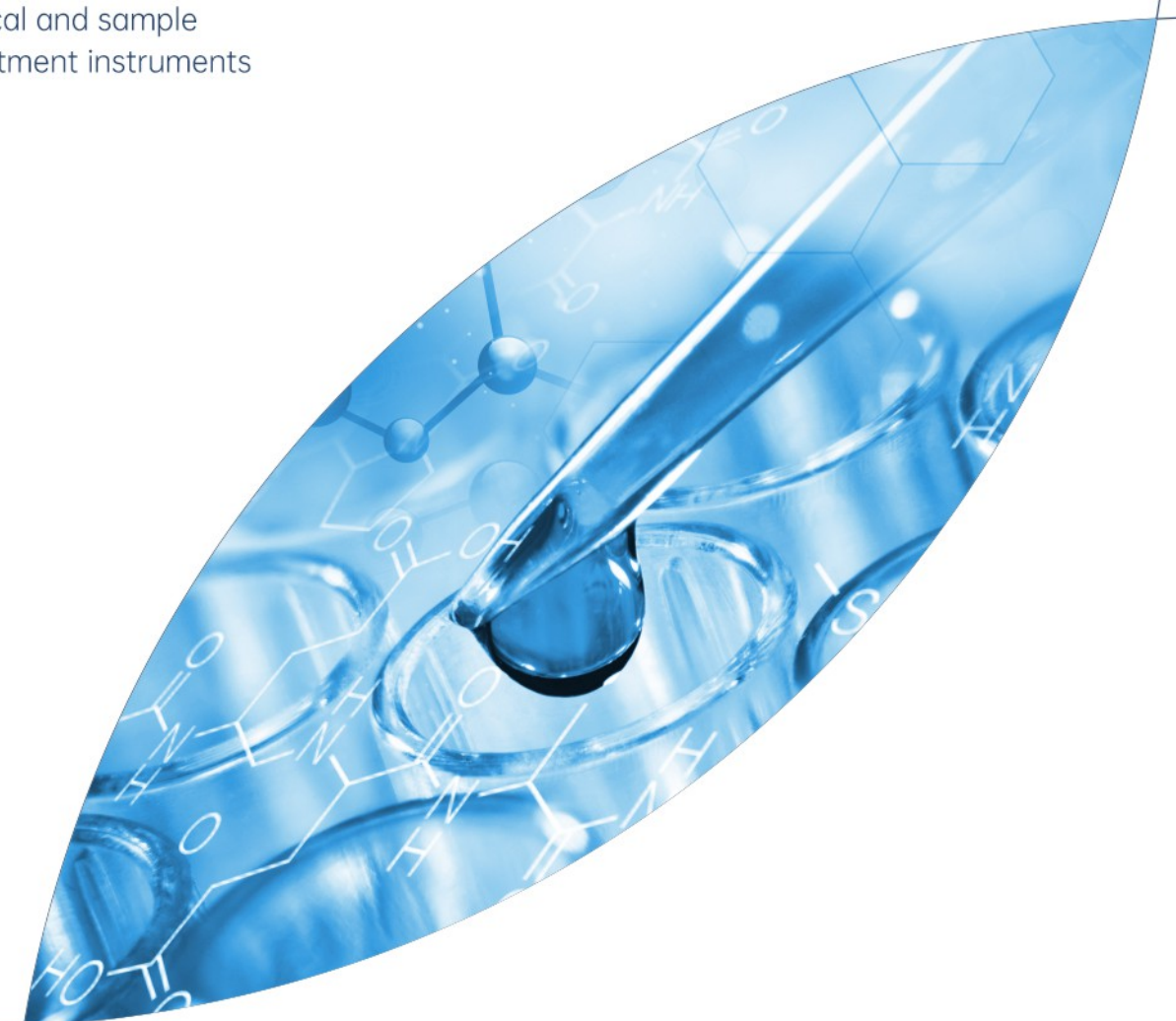
Professional manufacturer of
analytical and sample
pretreatment instruments

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COMPANY PROFILE

Beijing Orun Scientific Instrument Co., Ltd. (Abbreviation: Orun Instrument) is committed to becoming a first-class professional manufacturer of intelligent automated scientific instruments. Orun has established the production base in the Future Science and Technology Zone, Shijiazhuang Equipment Manufacturing Industrial Zone, Hebei Province. It has independent production and office space, and excellent conditions for R&D, production, assembly and product inspection. The production and management process strictly implements ISO9001 quality management system.

The company adheres to the development concept of "creating a national brand and promoting the spirit of craftsmanship" and actively establishes joint development relationships with many global scientific research institutes. It is committed to becoming a professional manufacturer of intelligent automated scientific instruments as its mission to provide customers with competitive professional solutions. To achieve the vision, we strive to create high-end laboratory intelligent and automated products.

The company independently researches and develops products such as ion chromatography, flow injection analyzer, rapid solvent extraction instrument, full-automatic parallel concentrator, intelligent and integrated distiller. Our service for global customers widely engaged in different industries, such as: environmental protection, third-party testing company, disease control, universities, water plants, customs, food and medicine, petrochemical industry, etc.



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Ion Chromatography OIC-600



Technical Parameter

Appearance	Size	360mm*424mm*519mm, box design, independent column thermostat
	List	Double plunger high-pressure constant flow pump, imported mechanical six-way valve, independent column thermostat, detector temperature control system, suppressor, bipolar conductivity detector, control system, etc.
Double plunger pump high pressure constant flow pump	Pump Pressure Resistance	≥35Mpa (5000psi)
	Flow Range	0.001—9.999ml/min
	Flow Accuracy	≤0.1%
	Flow Accuracy	RSD≤0.01%
	Material	Quartz plunger rod, high-pressure sealing ring, Peek pump head, acid-resistant, alkali-resistant, organic solvent-resistant, high-pressure resistant, good sealing and long life.
	Over limit alarm self-protection	When the system pressure exceeds the set value, it will buzz and alarm and automatically stop running.
Column Compartment	Structure	Built-in sealed column thermostat with thermal conductive structure inside and heat insulation layer outside
	Temperature Compensation	Indoor temperature—80℃
	Temperature Control Accuracy	±0.1℃
Detector	Type	Bipolar conductivity detector, sensitive response, independent temperature control system
	Resolution	≤0.002nS
	Temperature Compensation	Indoor temperature—60℃
	Temperature Control Accuracy	±0.1℃
	Baseline noise	≤0.2%FS
	Baseline drift	≤2.0%FS
	Minimum Detection Concentration	CL-≤0.0003 μ g/ml Li+≤0.0001 μ g/ml
	Qualitative Repeatability	≤0.15%
Quantitative Repeatability	≤0.35%	
Suppressor	Regeneration Mode	The electrofilm self-regenerates, eliminating the need to replace inhibitory glue and adding acid, easy to use, and quick to balance.
	Inhibitory Capacity	≥100 μ eq, high inhibition efficiency and can be used for gradient elution
	Volume	≤80 μ L, higher sensitivity and faster response
	Control Background	<1.0 μ S
	Compatibility	The anion suppressor is compatible with hydroxide system and carbonate and bicarbonate system The cation suppressor is compatible with methanesulfonic acid system, nitric acid system, oxalic acid system, etc.
	Power Supply	AC 220±20V, power 75W
Control system	Modular Design	Data acquisition and processing module, equipment control module
	Communication	Rs232 communication, parameter self-storage and reading, real-time data collection and transmission
	One-click connection	One-click automatic connection, all modules controlled at the same time
	One-click connection	Abandon the cumbersome manual steps of turning on and off the machine, and start and shut down automatically with one click
	Timed turn-off	Set the off time. After the time is reached, the device can automatically start the shutdown process.
	One-click auto maintenance	Click the maintenance button for one-click automatic maintenance to solve tedious maintenance problems
	Auto protection	The system automatically starts the protection program after the fluid is cut off to prevent accessories from being damaged due to the fluid cutoff.

Product features

- Simple cabinet design, beautiful and elegant appearance. Independent chromatography column case, eliminate interference and stabilize the temperature control.
- Full PEEK high pressure resistant twin plungers constant flow pump, strong tolerance, flow is stable and accurate.
- The detection system is independent and closed, with built-in temperature compensation, resistant to external interference, and the balance is faster and more stable.
- Elector-film continuous self-regeneration suppressor, liquid cutoff self- protection function, it suitable for gradient elution.
- Full PEEK flow path, acid resistant, alkali resistant, organic solution resistant, stable and free pollution.
- One key automated operation, firm and durable, performance is stable.

Applicable industries



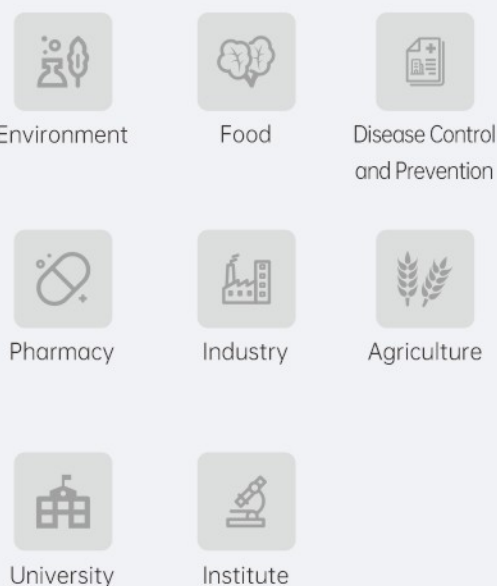
Ion Chromatography OIC-900



Product features

- Streamlined cabinet design, exquisite and elegant. Built-in eluent space, chromatography column heating space, stronger structural integrity.
- The eluent preheating function, reduces the interference of mobile phase temperature changes, shortens the system equilibrium time, and makes the baseline more stable.
- Built-in chromatography, equipped with heat insulation layers between column space and the detector space. The two spaces are independently control temperature, can not be interfered with each other, and the temperature control accuracy is higher and more stable.
- Electric injection valve and manual injection valve are optional, and automated injection sampler can be used as well.
- Highly sensitive and large-capacity dual electrode detector, with lower detection limit and wider detect range.
- The new V3.0 chromatography workstation has a higher degree of intelligent automation and stronger compliance management.

Applicable industries



Technical Parameter

Appearance	Size	375mm*445mm*518mm,streamlined box design, built-in column thermostat
	List	Double plunger high-pressure constant flow pump, electric/mechanical injection valve, built-in column thermostat, detector temperature control system, suppressor, highly sensitive and large-capacity conductivity detector, new control system, etc.
Double plunger pump high pressure constant flow pump	Pump Pressure Resistance	≥42Mpa (6200psi)
	Flow Range	0.000—10.000ml/min
	Flow Accuracy	≤0.1%
	Flow Accuracy	RSD≤0.01%
	Material	Quartz plunger rod, high-pressure sealing ring, Peek pump head, acid-resistant, alkali-resistant, organic solvent-resistant, high-pressure resistant, good sealing and long life
Column Compartment	Over limit alarm self-protection	When the system pressure exceeds the set value, it will buzz and alarm and automatically stop running.
	Structure	Built-in sealed column compartment; inside: thermal conductive structure, outside: heat insulation layer
	Temperature Compensation	Indoor temperature—80℃
Detector	Temperature Control Accuracy	±0.1℃
	Type	Highly sensitive and large-capacity conductivity detector with independent temperature control system
	Resolution	≤0.002nS
	Temperature Compensation	Room temperature—80℃
	Temperature Control Accuracy	±0.1℃
	Baseline noise	≤0.0005 μ S
	Baseline drift	≤0.003 μ S/30min
	Minimum Detection Concentration	CL-≤0.0003 μ g/ml Li+≤0.0001 μ g/ml
Suppressor	Qualitative Repeatability	≤0.15%
	Quantitative Repeatability	≤0.35%
	Regeneration Mode	The electrofilm self-regenerates, no need to replace inhibitory glue and external acid, easy to use, balance block
	Inhibitory Capacity	≥250 μ eq, high inhibition efficiency, can be used for gradient elution
	Volume	≤80 μ L, higher sensitivity and faster response
Control system	Control Background	<1.0 μ S
	Compatibility	The anion suppressor is compatible with hydroxide system and carbonate and bicarbonate system The cation suppressor is compatible with methanesulfonic acid system, nitric acid system, oxalic acid system, etc.
	Power Supply	AC 220±20V, power 75W
	Modular Design	Automatically scan chromatograph, injector and other related configurations, and automatically configure the system with one click
	Communication	RS232, can establish communication with multiple ports at the same time
	User Management	Different users can be added and corresponding permissions and passwords can be set for different users
	Sequence management	Sequences can be created and edited, and sample names, properties, locations, injection volumes, etc. can be freely set
	Automatic shut-down	Two automatic shutdown modes, automatic shutdown after sequence operation and timer shutdown, are freely selectabl
	Automatic printing	After the sequence is completed, the detection report can be automatically generated and printed
	Data collection	There are two injection methods: single run/batch run, and three trigger modes: injector trigger/software trigger/valve trigger. The acquisition process can generate thumbnails in real time and automatically process data
Data processing	Automatically reference multiple spectra at one time, with batch processing function to process multiple samples with one click	
Report	Report templates can be created and edited. The report can automatically generate curves and curve point data, can automatically generate multi-sample statistical information, and can print sequences and many other functions	
Compliance management	It has an audit tracking function and can quickly query audit records by category; With digital signature and online approval functions, paperless office can be realized Equipped with installation certification function, automatically detects and issues IQ report	

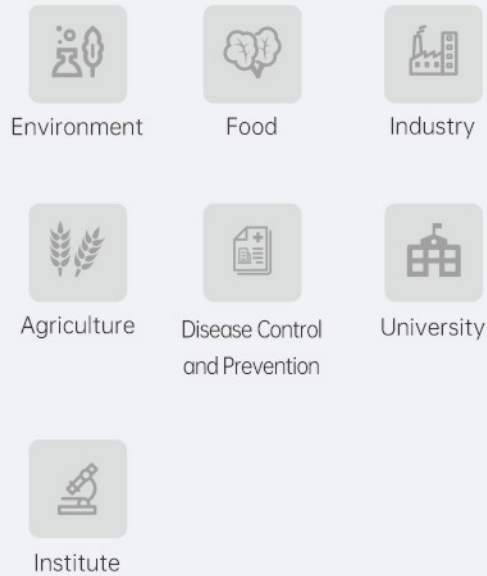
Ion Chromatography OIC-1100



Product features

- Integrated two-colors appearance design, integrated functional structure, high-end and elegant appearance.
- The built-in automatic sampler ensures accurate and stable injection with good repeatability. It can also achieve ultra-large volume injection, has a compact structure and smaller volume.
- The electric PEEK injection valve is resistant to acids, alkalis and organic solvents, does not leak under high pressure, and has a long lifetime. It can be configured with dual switching valves to meet multi-valve applications and multi-valve sampling requirements.
- The two regeneration modes of suppressor cycle self-regeneration and external fluid self-regeneration can be freely selected to meet the needs of different industry applications for regeneration modes.
- The online maintenance function can be automatically online maintained, getting rid of daily maintenance worries, saving time, effort and labor.
- High-precision super-capacitance conductivity detector, new detector space design, high sensitivity and wide signal range.

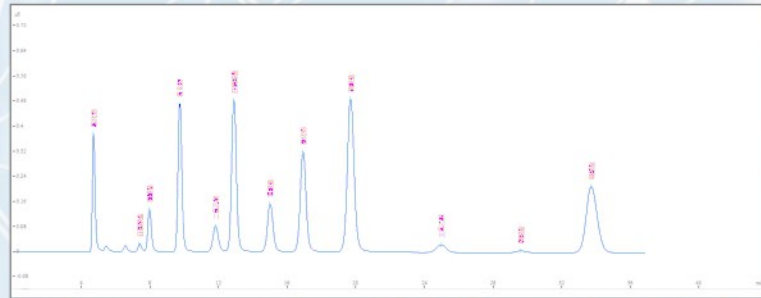
Applicable industries



Technical Parameter		
Appearance	Size	710mm*390mm*422mm, integrated design
	List	Double plunger high pressure constant flow pump, automatic sampler, automatic injection valve, built-in column compartment, detector temperature control system, suppressor, high sensitive and super capacity conductivity detector, control system
Double plunger pump high pressure constant flow pump	Pump Pressure Resistance	≥42Mpa (6200psi)
	Flow Range	0.001-9.999ml/min
	Flow Accuracy	≤0.1%
	Flow Accuracy	RSD≤0.01%
	Material	Quartz plunger rod, high pressure seal ring, Peek pump head, resistance of acid/ alkali/ organic solvent/ high pressure, well capacity of sealing, long life running
Over limit alarm self-protection	When the system pressure exceeds the set value, it will buzz and alarm and automatically stop running.	
Sampler	Structure	Built in, integrated, rotating disc type auto sampler
	Injection type	Peristaltic pump, full ring for sample injection
	Injection Repeatability	RSD≤0.5%
	Injection Volume	5-5000 μL
	Needle Washing Mode	Double peristaltic pump suction cleaning
	sample capacity	8.0ml sample bottle; 40wells: 39pcs sample wells and one-well for needle washing
	Method Parameter	Starting bottle number, finish bottle number, cleaning time, injection time, sampling interval, times of repetition, number etc. on
Column Compartment	Injection valve	Electric PEEK six-way valve, small volume, strong tolerance, double valve injection can be added
	Type	Built-in sealed column compartment; inside: thermal conductive structure, outside: heat insulation layer
	Temperature Compensation	Indoor temperature -80°C
Detector	Temperature Control Accuracy	±0.1°C
	Type	Highly sensitive and super-capacity conductivity detector with independent temperature control system
	Resolution	≤0.002nS
	Temperature Compensation	Indoor temperature -80°C
	Temperature Control Accuracy	±0.1°C
	Baseline Noise	≤0.0005 μS
	Baseline Drift	≤0.003 μS/30min
	Minimum Detection Concentration	CL-≤0.0003 μg/ml Li+≤0.0001 μg/ml
Suppressor	Qualitative Repeatability	≤0.15%
	Quantitative Repeatability	≤0.35%
Control system	Regeneration Mode	The electrofilm self-regenerates, no need to replace inhibitory glue and external acid, easy to use, balance block
	Inhibitory Capacity	≥100 μeq, high inhibition efficiency, can be used for gradient elution
	Volume	≤80 μL, higher sensitivity and faster response
	Control Background	< 1.0 μS
	Compatibility	The anion suppressor is compatible with hydroxide system and carbonate and bicarbonate system The cation suppressor is compatible with methanesulfonic acid system, nitric acid system, oxalic acid system, etc.
Control system	Power	AC 220±20V, power 75W
	Modular Design	Data collection and processing modular, instrument control modular, sampler setting modular
	Communication	RS232 communication, parameter save and read automatically; data collection and transmission at real-time
	Sequence Management	setting sample sequence and edit sample name
	One-click Connection	One-click connection for computer and instrument, control all modulars at same time
	One-click Turn on/off	Eliminate tedious manual switching steps, one click to turn on/ off the instrument
	Timed Turn-off	Setting turn-off time, automatically start the turn-off procedure when time is up.
Auto Protection	One-click Automatic Maintenance	Free choice of one-click automatic maintenance and online automatic maintenance modes
	Online automatic Maintenance	
Auto Protection	The system automatically starts the protection program after the liquid is cut off to avoid damage to the parts due to the liquid is cut off	

Application Example

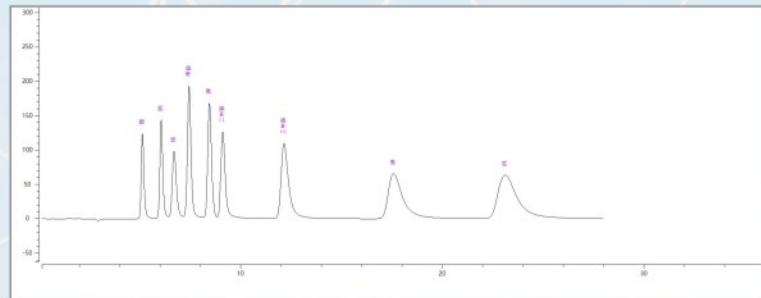
GB/T 5750-2023 Regular items



- Chromatographic column: OR-O-3 (OH-)
- Column temperature: 30.0°C
- Detector temperature: 35.0°C
- Mobile phase: Eluent generator (OH-)
- Flow rate: 1.0 ml/min

1.Fluoride 2. Chlorite 3. Bromate 4. Chloride 5. Dichloroacetic acid 6. Nitrite
7. Chlorate 8. Bromide 9. Nitrate 10. Trichloroacetic acid 11. Carbonate 12. Sulfate

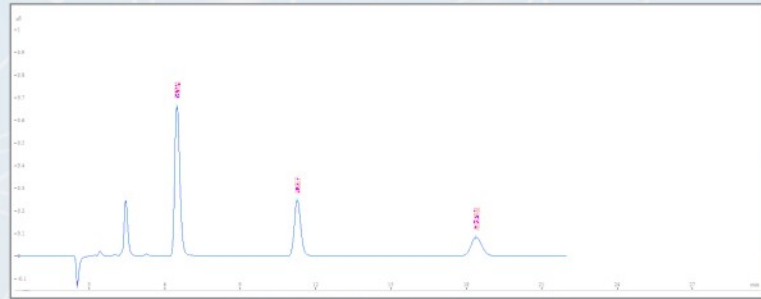
Conventional cations + methylamines



- Chromatographic column: OR-M-2
- Column temperature: 40.0°C
- Detector temperature: 35.0 °C
- Mobile phase: Eluent generator (MSA) (25.0mmol/L methane sulfonic acid)
- Flow speed: 1.0 ml/min

1.Lithium 2. Sodium 3. Ammonium 4. Methylamine 5. Potassium
6. Dimethylamine 7. Trimethylamine 8. Magnesium 9. Calcium

Phosphates, iodides, perchlorates



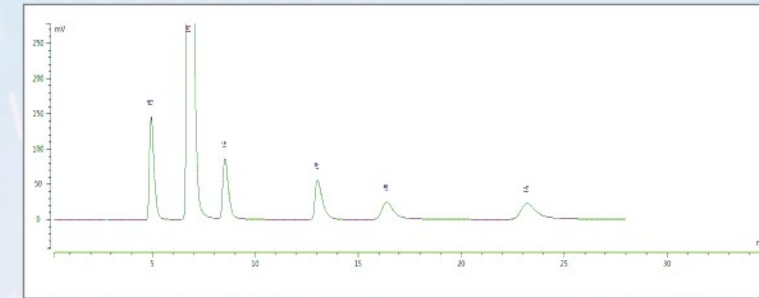
- Chromatographic column: AS-20
- Column temperature: 30.0°C
- Detector Temperature: 35.0°C
- Mobile phase: Eluent generator (OH-) (35.0mmol / L KOH))
- Flow rate: 1.0 ml/min

1.Phosphates 2. Iodides 3. perchlorates

Common standard

- GB/T 5750-2023 Standard test method for drinking water
- GB/T 35665-2017 Determination of formic acid and acetate ions in atmospheric river water, by Ion chromatography
- GB/T 20188-2006 Determination of bromate in wheat flour by ion chromatography
- HHJ 778-2015 Water quality determination of iodide by Ion chromatography
- GB/T 23710-2009 Determination of betaine in feed by Ion chromatography
- HJ 549-2016 Determination of hydrogen chloride in ambient air and waste atmosphere by ion chromatography
- GB/T 31197-2014 Determination of impurity anions in inorganic chemical products by ion chromatography
- HHJ 544-2016 Determination of sulfuric acid fog in the exhaust gas of stationary sources by Ion chromatography
- GB/T 24876-2010 Determination of seven anions in livestock and poultry breeding wastewater by Ion chromatography
- HJ84-2016 Water quality Determination of inorganic anions by Ion chromatography
- GB/T 40395-2021 Determination of ammonium ions in methanol for industrial use by Ion chromatography

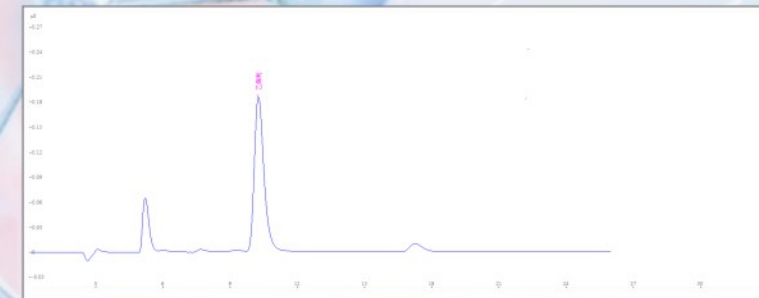
Medicine (Detection of cations in serum)



- Chromatographic column: CS-16
- Column temperature: 35.0°C
- Detector temperature: 35.0°C
- Mobile phase: Eluent generator (MSA)(28.0mmol/L methane sulfonic acid)
- Flow rate: 1.0 ml/min

1.Lithium 2. Sodium 3. Ammonium 4. Potassium 5. Magnesium 6. Calcium

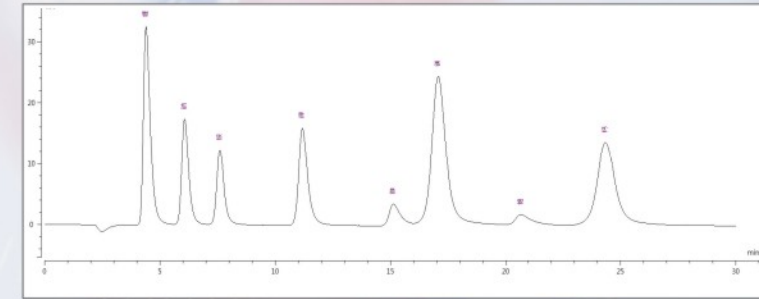
Industry and agriculture



- Chromatographic column: OR-C-2
- Column temperature: 30.0°C
- Detector temperature: 35.0 °C
- Mobile phase: eluent generator (CO₃²⁻/HCO₃⁻)
- Flow rate: 1.0 ml/min

1. Etkephon

Research rare metals rubidium and cesium



- Chromatographic column: CS-16
- Column temperature: 50.0°C
- Detector humidity: 35.0 °C
- Mobile phase: Eluent generator (MSA) (23.0mmol/L methane sulfonic acid)
- Flow rate: 0.5ml /min

1.Lithium 2. Sodium 3. Ammonium 4. Potassium 5 rubidium 6. Magnesium
7 cesium 8. Calcium

Common standard

- HJ 1005-2018 Determination of cations in ambient air precipitation by ion chromatography
- GB/T 24800.13-2009 Cosmetics Determination of nitrite by ion chromatography
- HJ812-2016 Water quality Determination of soluble cations by Ion chromatography
- HJ 800-2016 Determination of soluble cations in ambient air particles by ion chromatography
- HJ 799-2016 Determination of water-soluble anions in ambient air particulates by ion chromatography
- DZ/T 0064.51-2021 Methods for analysis of groundwater quality. Part 51: Determination of chloride, fluoride, bromides, nitrates and sulfates by Ion chromatography
- DZ/T 0064.28-2021 Methods for analysis of groundwater quality. Part 28: Determination of potassium, sodium, lithium and ammonium by Ion chromatography
- SN/T 4049-2014 Determination of chlorate in food for export by Ion chromatography
- SN/T 3636-2013 Determination of sulfate in food for export by Ion chromatography
- HG/T 4199-2011 Determination of fluorine content in inorganic chemical products by Ion chromatography
- SN/T 4041-2014 Determination of fluoride and bromide content in food for export by Ion chromatography

Automated Sampler **ORAS-120**



Technical Parameter

Sample capacity	120 position
Injection repeatability	Full quantitative
loop injection	RSD≤0.3%Partial
loop injection	RSD≤0.5% (injection volume≥3 μL)
Sample residue	≤0.01% (according to the specified needle washing procedure)
Operation control mode	panel direct operation control and RS-232 control at the same time
Display	LCD, 4.3 inches
Control	32-bit embedded microprocessor using ARM7 core

Product features

- Closed appearance structure, flexible sample injection in X, Y, Z three dimensions.
- LCD true color display screen, real-time animation monitoring interface, intuitively and dynamically display the equipment operating status.
- Independent cleaning position, double-space needle washing tank design, synchronous cleaning of the inside and outside of the pipeline and injection needle.
- 120 sample wells, standard universal sample bottles.
- Multiple operating modes (continuous/ priority/ test), needle washing mode (pre-wash/ post-wash/ pre and post wash), injection mode (full loop injection/ partial injection/ precision injection) can be switched freely.
- High-precision syringe pump injection, the injection volume can be freely set from 0 to 500 μL, and there is no need to replace the quantitative loop for different injection volumes.
- The automatic dilution function can automatically dilute high- concentration samples and automatically calculate the original concentration, saving labor and time, reducing error interference.
- The injector can be directly controlled by the chromatography workstation, or it can be independently controlled and operated by its own panel or software.

Rapid Solvent Extractor **ORSE-06**



Technical Parameter

Number of channels	six wells
Flow accuracy	±2%
Extraction cell specifications	10, 20, 34, 40, 60, 66, 80, 100, 120; can be customized
Pressure range	3-150bar; 0.3-15mpa, independent pressure measurement for each channel
Pressure accuracy	±5bar; ±0.5mpa
Collection bottle specifications	60, 150, 200, 250ml; can be customized
Temperature range	room temperature-220°C
Temperature control accuracy	±2°C
Proportional valve channel	four wells
Proportional valve mixing accuracy	±2%
Nitrogen inlet pressure	6-10bar; 0.6-1.0mpa
Size	690*535*715mm
Weight	85kg
Voltage	220VAC
Frequency	50/60Hz
Maximum power	1800 watts 10A
Environmental conditions	indoor use
Operating temperature	5-45°C

Eluent Generator **OEDG-100**

Product features

- Independent appearance structure design, high degree of automation, strong anti-interference ability, free matching, plug and play.
- Hydroxide system, carbonate system (including carbonate and bicarbonate mixed system), methanesulfonic acid system, multi- system models are optional.
- Built-in continuous regeneration impurity remover and online degassing device, low background value and less interference.
- The eluent produced has higher purity, more accurate concentration and more stable operation.
- The indicator light prompts the operating status in real time, and the equipment automatically stops eluent production when status are abnormal.
- Software control, free selection of gradient elution/ isocratic elution, free setting of concentration changes and mixing ratios.



Technical Parameter

Eluent type	KOH, K2CO3/KHCO3, K2CO3, CH3SO3
HEluent concentration range	0.5-100mM (KOH, CH3SO3H); 0.5-10mM (K2CO3)
Trial flow rate range	(0.1-2.0) mL/min
Maximum operating pressure	3000psi (21MPa)Online generation of high-purity, controllable concentration eluents

Product features

- Extraction mode: The instrument features a six-channel parallel extraction mode. In this mode, it allows simultaneous processing of six samples under the same conditions, resulting in high processing efficiency. Additionally, each channel can be used individually for sample extraction if desired.
- Heating furnace: The fully enclosed heating furnace simultaneously heats all six channels, resulting in faster and more uniform temperature rise.
- Control panel: The control panel utilizes a combination of physical buttons and a display screen for operation. It includes features such as method editing, method saving, and preheating.
- Extraction vessels: The instrument offers 8 different volumes of sample extraction vessels. The volume of the extraction vessels can be customized according to customer requirements.
- High-pressure infusion pump: It features a high-flow, high-pressure dual-plunger constant-flow pump that automatically adjusts pump speed based on the number of channels. It also automatically adjusts the liquid delivery speed based on the pressure, effectively preventing overpressure during the pressurization process and enhancing system stability.
- Solvent controller: It has a quaternary solvent mixing device that can simultaneously connect four different solvents. It can automatically mix extraction reagents in the desired proportions according to the method settings.
- Solvent flow path: Treated with chemical passivation technology, the instrument's solvent flow path can accommodate non-strong acid extraction reagents such as acetic acid, phosphoric acid, and others in specific proportions.
- Extraction liquid collection: It supports collection bottles with specifications ranging from 60 to 250 mL. The specifications of the collection bottles can be customized according to customer requirements.
- Pressure protection: The overall flow path and each individual channel are equipped with pressure testing capabilities. The equipment can automatically provide pressure protection by effectively monitoring for leaks.
- Automatic cleaning function: The instrument is equipped with automatic nitrogen flushing and solvent flushing capabilities.
- Safety and reliability: Each channel is equipped with pressure detection, temperature monitoring, and alarms to ensure the safe and reliable operation of the instrument.
- Graphical design: The instrument features a fully Chinese-operated interface with graphical design, allowing real-time graphical display of the extraction process.
- Fault alarm: The instrument is equipped with intelligent fault alarm functionality, which conveniently alerts users to any operational issues

Intelligent Integrated Distiller

Optima-6/6+



Technical Parameter

Size	920*540*844mm(External cooling recycle water) 998*560*1085mm(Built-in cooling recycle water)
Working voltage	AC 220V 50Hz
Power	Six wells general 3000W
Heating wells	Six well. controll seperatly
End control	Weighing and timing
Temperature control	Indoor temperature to -400°C
Timing control	0-600mins
Weighing setting	0-600g
Measurement accuracy	0.1g
Operating method	LCD touching screen

Product features

- **Unattended:** The system automatically completes heating, peeling, temperature control, compressor refrigeration, cooling water circulation and distillation end point determination.
- **Heating module:** Using advanced far-infrared ceramic radiation heating technology, no open flame, low power consumption, high efficiency, long life, uniform heating, not easy to explode, and good corrosion resistance. The heating components can be controlled individually without interfering with each other. Single well control and all six wells can be controlled. Single channel power 500W, total power 3000W.
- **Cold water circulation module:** It can have built-in/ external compression refrigeration components, and the cooling water source is in a closed loop without external tap water. It can meet the condensation work under various working conditions. It is simple to operate, flexible to use, and has good refrigeration effect.
- **One-click self-cleaning:** The distiller has a built-in automatic cleaning pump. There is no need to disassemble the bottle. After the experiment, the distiller pipeline can be cleaned directly with one click, which is convenient, fast, safe and efficient.
- **Distillate liquid anti-suckback:** When the distillate reaches the end point, the distillate outlet is automatically locked, and the built-in suckback valve automatically opens, ensuring accurate weighing and anti-suckback prevention.
- **Distillation Dual Mode:**
Weighing distillation: Use a high-precision weighing end-point detection module with a measurement accuracy of 0.1g, and the distillation will automatically stop at the end of the distillation.
Timing distillation: distillation according to the set time, and it will be automatically stopped when the time is reached. Two modes can be selected arbitrarily, and the distillation mode of each unit can be set independently.
- **Precision distillation:** When distillation reaches the set amount, the liquid outlet is automatically locked. Prevent excessive distillation due to residual heating and ensure accurate distillation without excessive distillation.
- **External LCD touch screen:** The display screen is placed externally on the instrument. It is easy to take and can effectively prevent corrosion of the display screen by spilled liquid.

Integrated Full Glass Distiller

R6



Technical Parameter

Size	900*350*700mm
Working voltage	AC 220V 50Hz
Power	Single well 0-500W adjustable, power can be changed in real time
Heating wells	Six well. controll seperatly
End control	Weighing and timing
Temperature control	Indoor temperature to -400°C
Timing control	0-999min
Weighing setting	0-3000g
Measurement accuracy	0.1g
Operating method	LCD touching screen

Product features

- **Unattended:** The system automatically completes heating, peeling, temperature control, compressor refrigeration, cooling water circulation and distillation end point determination.
- **Heating module:** Using advanced far-infrared ceramic radiation heating technology, no open flame, low power consumption, high efficiency, long life, uniform heating, not easy to explode, and good corrosion resistance. The heating components can be controlled individually without interfering with each other. Single channel control and all six channels can be controlled. Single channel power 500W, total power 3000W. Power can be changed in real time.
- **Software operation:** Embedded 7inches high-definition touch LCD screen, beautiful and elegant.
- **Distillate anti-suckback:** One-way valve anti-suckback protection, The customized glass condensation tube has a built-in glass one-way valve. When the instrument automatically stops heating, it avoids backdraft caused by internal negative pressure caused by cooling of the flask.
- **Three modes of distillation:**
Weighing distillation: Use a high-precision weighing end-point detection module with a measurement accuracy of +0.1g, and the distillation will automatically stop at the end of the distillation. Timing distillation: steam according to the set time, and automatically stop steaming when the time is reached. Weighing + timed distillation: The weighing weight and time can be set at the same time. When the end point is reached, the distillation will automatically stop. Three modes can be selected arbitrarily, and the distillation mode of each unit can be set independently
- **Automatic precision distillation:** The screen dynamically displays the current working status in real time. When the distillation amount reaches the set value, it automatically stops heating and buzzes an alarm.

Sulfur Dioxide
Titration Apparatus

Optima-M4/M6/MH6



Technical Parameter

Size	890*510*878mm
Working voltage	AC 220V 50Hz
Power	3000W
Heating wells	Six well. controll seperatly
End control	Weighing and timing
Timing control	0-600mins
Adding acid	Manual/automatic (optional)
Automatically add acid	Liquid shortage reminder, automatic filtering, accuracy $\pm 0.1\text{mL}$, repeatability $< 1\%$
Operating method	LCD touching screen

Product features

- **Unattended:** The system automatically completes heating, distillation, temperature control, cooling water circulation, distillation endpoint determination, and stirring steps.
- **Heating Module:** It adopts advanced far-infrared ceramic radiation heating technology, which does not involve open flames. It has the advantages of low power consumption, high efficiency, long lifespan, uniform heating, resistance to boiling, and excellent corrosion resistance. Each heating component can be controlled individually without interference, allowing for single-channel independent control or simultaneous control of four/six channels. The power of a single channel is 500W, The total power is 2000W/3000W, and the power can be changed in real-time.
- **Cooling Water Circulation Module:** External Cold Water: The cooling water source operates in a closed-loop system, without the need for external water supply, meeting the condensation requirements under various working conditions. • **Anti-backflow of Receiving Liquid:** When the receiving liquid reaches the preset endpoint, the nitrogen gas does not automatically shut off, effectively preventing the problem of backflow of the receiving liquid.
- **Receiving Mode: Timed Distillation:** Distillation is carried out based on a preset time. The distillation process automatically stops when the set time is reached.
- **Nitrogen Gas Control System:** The system automatically controls the opening of the nitrogen gas without the need for manual operation. The instrument is equipped with a built in flow control device that can accurately adjust the nitrogen gas flow rate. It can also be connected to a nitrogen gas generator for operation.
- **Built-in Magnetic Stirring:** The instrument is equipped with a built-in magnetic stirring function. It can be easily activated and controlled through the screen interface. With just a click, the magnetic stirring can be started, and the stirring speed can be adjusted as desired.
- **External LCD Touch Screen:** The display screen is located externally on the instrument body, making it easy to access and effectively protecting the screen from corrosive spills.
- **Automatic Acid Addition:** The system enables precise and quantitative acid addition, ensuring thorough reaction and minimizing errors. It includes features such as low liquid level warning, automatic bubble filtration, and acid addition accuracy of $\pm 0.1\text{mL}$ with a repeatability of less than 1%.

Multi-functional Cooling
Bath Distiller

Optima-W4



Technical Parameter

Size	830*540*768mm
Working voltage	AC 220V 50Hz
Power	four wells gengeral 2000W
Heating wells	Four well, control seperatly
End control	Weighing and timing
Temperature control	Indoor temperature to 400°C
Timing control	0-600mins
Operating method	LCD touching screen

Product features

- **Heating Module:** It adopts advanced far-infrared ceramic radiation heating technology, without open flames, low power consumption, high efficiency, long lifespan, uniform heating, and resistance to boiling and corrosion. Each heating component can be controlled separately without interference, allowing for individual control of a single channel or simultaneous control of all six channels. The power of a single channel is 500W, with a total power of 2000W.
- **Cooling Water Circulation Module:** External Cold Water: The module operates on a closed-loop cooling water system, eliminating the need for external water supply. It is designed to meet the condensation requirements in various working conditions. The module is user-friendly, easy to operate, flexible to use, and provides excellent cooling performance.
- **Refrigeration Module:** It utilizes high-efficiency semiconductor refrigeration modules capable of achieving temperatures as low as -30°C . This module is suitable for ultra-low-temperature storage and effectively prevents the evaporation of distillate.
- **One-Click Cleaning Function:** The distillation apparatus is equipped with a built-in automatic cleaning pump, eliminating the need to dismantle the bottle. After the experiment is completed, you can directly initiate the one-click cleaning of the distillation pipeline. This feature is convenient, quick, and ensures high efficiency and safety.
- **Anti-backflow of Distillate:** When the distillate reaches the pre-set endpoint, the outlet of the distillate is automatically locked, and simultaneously, the built-in backflow valve is automatically opened.
- **Dual Mode Distillation:** The instrument utilizes a high-precision liquid level sensor to automatically detect the height of the liquid level in the receiving flask. It automatically stops the distillation process when the distillation reaches the endpoint.
- **Timed Distillation:** The distillation process is based on a preset time. The distillation continues until the set time is reached, and it automatically stops the distillation process at that time.
- **Intelligent Human-Machine Interaction:** The distillation apparatus is equipped with six built-in distillation methods, allowing you to directly select a method without the need for frequent data input. Additionally, you can customize and save methods according to your experimental requirements for future use.
- **Automatic Precise Distillation:** After the distillation volume reaches the desired quantity, the distillate outlet is automatically locked to prevent excessive distillation due to residual heat. This feature ensures precise distillation without over-distillation.
- **External LCD Touch Screen:** The display screen is located externally on the instrument body, making it easy to access and effectively protecting the screen from corrosive spills.

Automated Parallel Concentrator

ORNS-12



Technical Parameter

Concentrated sample bottle volume	200mL or 50mL can be optional
Concentration unit	Concentration wells: 12wells
	1 ~ 200mL sample can be nitrogen blown concentration (50mL or 200mL concentration cup can be used at the same time)
Operating system	7 inch LCD touch screen
Indoor use environment	Ambient temperature: Indoor temperature ~ 80 °C
Instrument size	758mm*440mm*300mm
Power supply	220V, 50HZ
Machine power consumption	2500W
Relative humidity	< 85%RH, No condensation

Product features

- **Adjustable blowing needle:** The blowing needle can be adjusted in terms of the forward and backward tilting angle, left-right position, rotation, and replacement.
- **Single well single-control:** Each channel can be individually configured, and all twelve channels can be set to different modes. They can be opened or closed independently without interference.
- **Automatic volumetric control:** Utilizing high-precision imported optical sensors, it achieves precise volumetric control of 0.5mL/1mL.
- **Built-in methods:** It has six built-in methods, allowing you to set the method name, operating mode (volumetric, timed, volumetric + timed), and operating time.
- **Constant temperature water bath:** Equipped with an intelligent AI-PIDd algorithm for precise temperature control, the constant temperature water bath features a water level sensor and automatic low water level alarm.
- **Automatic water filling:** When the water filling button is pressed, the instrument automatically adds water and stops when reaching the desired water level.
- **Lid opening pause:** The instrument is equipped with lid opening detection function. When the lid is detected as being opened during normal operation, it automatically stops the nitrogen gas supply and enters a pause mode.
- **Lid suspension:** It features a lid suspension design, allowing the lid to hover at any position. During the concentration process, when the lid is opened, the nitrogen blowing automatically stops, and when the lid is closed, the nitrogen blowing resumes automatically.
- **Control system:** Vortex blow-off method: Each air passage can be independently controlled, allowing for adjustable airflow during the concentration process.
- **Operating system:** The instrument comes with a built-in LCD touchscreen that allows direct parameter settings and real-time display of temperature, pressure, time, and other parameters. The instrument features a visual window design with illumination functionality, facilitating easy observation.
- **Heating system:** The instrument features a fully enclosed water bath chamber. The inner wall and cover plate in contact with the concentration cup are treated to prevent corrosion and rust. Steam will not rise above the mouth of the concentration cup, preventing steam from entering the concentration cup.

Soil Cation Exchange Capacity Stirrer

CEC-8



Technical Parameter

Size	573x233x348mm
Working voltage	AC220V 50Hz
Power	75W
Motor speed	5400rpm/min
Control mode	Timing automatic, manual control
Timing control	10-300s
Operating method	LCD touching screen

Product features

- **Micro DC motor:** Stable performance, speed can reach 5400rpm
- **Magnetic tube rack:** made of stainless steel material is utilized, which can firmly adhere to the lifting platform. It is equipped with 8 dampers to secure centrifuge tubes.
- **Dual stepper motor lifting system:** This equipment utilizes a dual stepper motor control for the lifting system, providing high precision positioning and smooth operation during elevation.
- **Color touchscreen control:** It features a 4.2-inch color touchscreen for control, equipped with a user-friendly interface, one-touch power on/off button, and intuitive operation.
- **Control mode:**
Automatic timed stirring: Timed stirring from 10 to 300s.
Manual Stirrer: Allows manual control of stirring time and stirring position.