

EWAI Products

GC-MS 3100/3200 Gas Chromatograph-Mass Spectrometer (Quadrupole)
GCxGC TOF MS 3300 Comprehensive Two-dimensional
Gas Chromatograph - Time of Flight - Mass Spectrometer
GC-MS 3110 Mobile Gas Chromatograph-Mass Spectrometer
GC-4000A/4100 Series Gas Chromatograph
EW-4400 Portable PID Gas Analyzer
LC-5500/5510/5520 High Performance Liquid Chromatograph
IC-2800 Ion Chromatograph
ICP-1000II Automatic ICP Spectrometer
ICP-7700 ICP Spectrometer
AA-7001/7003/7020/7050/7090 Atomic Absorption Spectrometer
AA-7003M/7030A Medical Atomic Absorption Spectrometer
AF-7500/7500B/7550 Atomic Fluorescence Spectrometer
XD-8010 Energy Dispersive X-Ray Fluorescence Spectrometer
XF-8100 Wavelength Dispersive X-Ray Fluorescence Spectrometer
CA-9000 Mobile Lab for Inspection
Coal Mine Analyzers
Data Processing Workstations
LIMS Laboratory Information Management System

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IC-2800

Ion Chromatograph
EAST & WEST ANALYTICAL INSTRUMENTS, INC.

Simply Precise

Founded in 1988 by two senior engineers, East & West Analytical Instruments, Inc. (EWAI) has over 25 years of experience in providing a wide range of analytical solutions to fulfill our customer's needs.

From the beginning, innovation has always been at the core of our business. With the introduction of the GC-MS 3100 in 2007, we became the first domestic manufacturer to produce a commercial GC-MS system. Through continuous focus on research and development, we have expanded our product line to include GC, GC-MS, LC, AAS, AFS, and XRF. Along the way, we have collected more than 30 patents and more than 100 awards and certificates. Our quality products provide solutions for applications ranging from mining to food safety.

EWAI is dedicated to maintaining a high quality of products and after-sale services. We have more than 30 branches in China and distributors in more than 20 countries. With our large and well trained service team, we can guarantee excellent service regardless of your location.

In 2013, EWAI and GBC Scientific Equipment Pty. Ltd. of Australia entered into a strategic partnership. This acquisition is a major step forward in our quest to become a diverse and internationally recognized manufacturer in the global analytical instruments industry. GBC adds to EWAI's already long product line with a variety of products and solutions including AAS, UV-Vis, ICP, ICP-ToF, and XRD.

- ISO9001 Quality Management System Certificate
- 21315 Quality Credit AAA Grade Certificate
- Top Ten Chromatography Instrument Awards from BCEIA
- Gold Award from BCEIA
- The Designated Enterprises for Coal Mine Safety Equipment
- The Most Popular Manufacturer Award in the instruments and equipment industry

- ISO14001 Environmental Management System Certificate
- CE Certificate
- Top Ten Spectroscopy Instrument Awards from BCEIA
- Innovation Award
- Beijing Science and Technology Award
- Scientific Instruments Product Excellence Award



High Tech Enterprise Certificate



ISO9001



ISO14001



21315 Quality Credit AAA Grade Certificate



Innovative Design Red Star Award



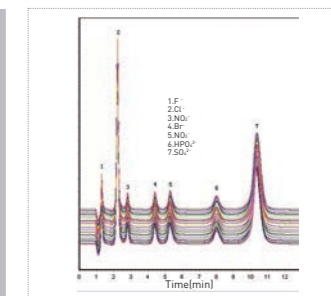
National Important New Product

IC-2800 Ion Chromatograph

IC-2800 adopts a full PEEK constructed dual-piston pump and flow system, self-regenerating electrochemical suppressor and automated eluent generator. Under the control of the powerful "Ace" software, the IC-2800 features ease of use, fast start up and reliable and stable performance.



AS-402 Autosampler



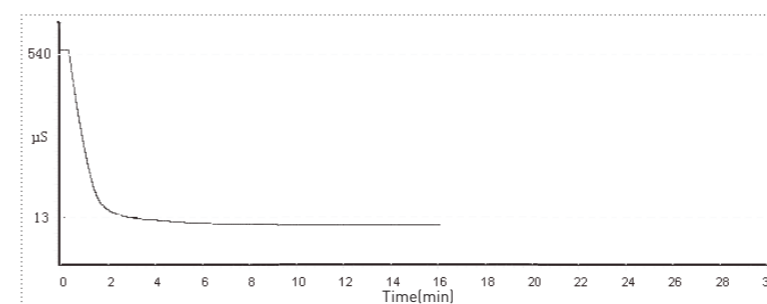
Repeatability of 20 Consecutive Analyses

Features

The electrochemical suppressor is specifically designed to be continuously self-regenerating. Since the eluent has high background conductivity, chemical inhibition must be done so that signals from analytes can be detected. The inhibition of background conductivity is achieved through the reaction of CO_3^{2-} and HCO_3^- in the eluent with H^+ produced by electrolysis to generate H_2CO_3 of

low conductivity during anion analysis and the reaction of H^+ in the eluent with OH^- produced by electrolysis to generate H_2O .

H^+ or OH^- ions are produced by electrolysis without addition of extra eluent to realize automatic regeneration of ion exchange membrane.

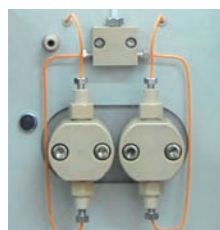


Equilibrium Curve of Suppressor



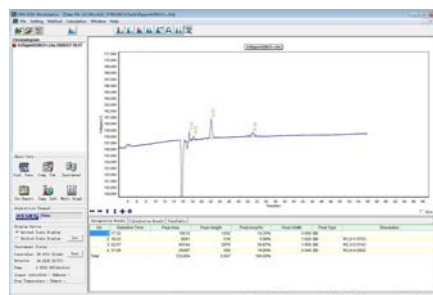
Suppressor (Anion/Cation)

Self-regenerative electrochemical suppressors for anions and cations are provided with the features of large inhibition capacity, low background conductivity (ppb level), low dead volume, rapid equilibrium, good repeatability, simple operation, easy maintenance etc.



Pump Head (PEEK)

- Full PEEK double plungers and low pulsation infusion pump with wide range of flow rates, stable operation and low maintenance costs.
- Full PEEK flow system for protection from metal pollution, high pressure, acids and alkalis and compatibility with organic solvents.
- High-speed data transmission and processing capabilities and automatic identification, control and real-time monitoring of the operating state of instrument components to ensure continuous and stable analysis.
- Advanced digital thermal conductivity detector with high sensitivity, high stability to ensure accurate and reliable results.
- Optional eluent generator to achieve automated eluent preparation.



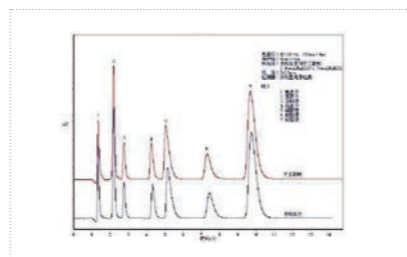
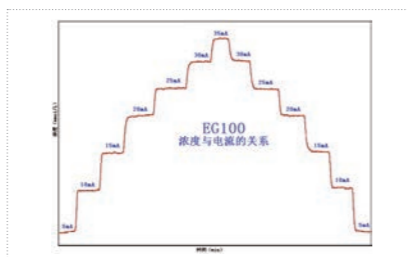
ACE Software

- **Advanced Software System**
All instrument parameters are controlled through software and are displayed in the interface.

The Ace chromatography software is powerful and easy to understand. The instrument can also be operated through the front panel. The real-time status of each component can be monitored during the entire analysis process.

EG100 Eluent Generator - Ion Chromatography's Helping Hand

Operators often need to change eluents of different concentrations and different types during analysis, which creates heavy workload and is inevitable to cause human errors. To solve this problem, EWAI has launched a unique and automated EG100 eluent generator without an additional degassing unit.



EG100 - Features

- Scientific and reasonable structure design and no additional degassing unit to ensure reliable generation of eluent.
- Only one pump is needed to achieve concentration gradient elution.
- Both OH⁻, CO₃²⁻ / HCO₃⁻ eluent for anion analysis and methanesulfonic acid eluent for cation analysis are generated automatically.
- Simple operation and control. Concentration of eluents can be set by software or through the front panel.
- High purity eluents are generated automatically without manual preparation to save operator's time.
- Eliminate errors due to manual eluent preparation and long term storage to greatly improve the reproducibility of analysis results.
- Further reduce the background conductivity and noise and therefore improve the detection sensitivity.
- Reduce the time of the user's exposure to chemical agents to create a safer working environment.
- Can be independently controlled via the front panel and used with any ion chromatograph.

DM-100/DM-101 On-line Degasser

- **Usages:** DM-100 / DM-101 on-line degasser can be used for EWAI IC-2800 series ion chromatograph, EWAI LC-5500 series high-performance liquid chromatograph, or ion chromatograph and liquid chromatograph from other manufacturers.



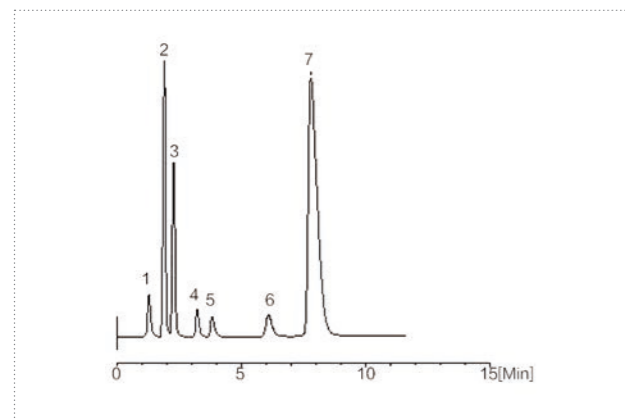
- **Features:** On-line degasser has the features of high degassing efficiency, easy installation, fast baseline equilibrium, no drift, and low noise regardless of whether using isocratic elution or gradient elution.
- **Installation:** DM-100 / DM-101 on-line degasser can be equipped with 1 to 4 degassing channels according to customer requirements. Either horizontal or vertical degasser orientation is selectable based on the overall structural design of the chromatography system being paired with. The on-line degasser can be installed between the reservoir tanks and infusion pumps.

IC-2800 Technical Specifications

Analysis	
Detectable Ions	Anions: F ⁻ , Cl ⁻ , NO ₂ ⁻ , Br ⁻ , BrO ₃ ⁻ , NO ₃ ⁻ , HPO ₄ ²⁻ , SO ₄ ²⁻ , S ₂ O ₃ ²⁻ , SO ₃ ²⁻ , HCOO ⁻ , acetic acid, oxalic acid, outgrowth of sterilized tap-water Cations: Li ⁺ , Na ⁺ , NH ₄ ⁺ , K ⁺ , Mg ²⁺ , Ca ²⁺
Detection Range	ppb ~ ppm
Dynamic Range	10 ³
Linear Related Coefficient	0.9998 (for Cl ⁻ and Li ⁺)
Baseline Noise	< 0.5%FS
Baseline Drifting	±1.5%FS /30 min
Fluid Pump	
Type	Parallel dual piston pump, pulse and motion controlled by microprocessor, speed adjustable.
Construction	Chemically inert, Non-metallic PEEK materials for the pump head and flow system
pH	0-14
Control	By Ace software or front panel
Operating Pressure	Max 35 MPa (5000 psi)
Flow Rate Range	0.001-15.0 mL/min, 0.001 increments
Flow Precision	≤ 0.1% RSD
Flow Accuracy	±0.2%
Piston Valve Cleaning	Double piston continuous cleaning
Over Pressure Protection	Upper limit 0-35 MPa, with 1 unit incremental, lower limit: 1 unit lower than upper limit. Pump stops working if upper limit is reached
Online degassing (optional)	2-channels, automatic online
Temperature Controlled Conductivity Detector	
Type	Microprocessor controlled, digital signal
Cell Frequency	10 kHz
Range of detection	0-15000 μS
Resolution	0.0275 nS/cm
Cell Temperature Range	Room temperature ~ 60°C, User adjustable
Temperature Stability	≤ 0.005 °C
Cell Construction	PEEK
Cell Volume	< 1 μL

Column Oven	
Temperature Range	Room temperature +5 °C ~ 60 °C
Temperature Accuracy	± 0.5 °C
Temperature Stability	≤ 0.1 °C
Suppressor	
Suppression Type	Automated self-regeneration recirculation
Suppression Capacity	Anion 100 mmol/L NaOH Cation 100 mmol/L MSA
Dead Volume	< 50 μL
Equilibrium time	< 15 min
Anion Suppressor Current	0-200 mA, in 1 mA increments
Cation Suppressor Current	0-300 mA, in 1 mA increments
Eluent Generator	
Eluent Concentration range	0.1 - 50 mmol/L
Eluent Type	OH ⁻ , CO ₃ ²⁻ /HCO ₃ ⁻ , MSA
Concentration Increment	0.1 mmol/L
Flow Rate Range	0.5 - 3.0 mL/min
Operating Temperature	Room temperature -40 °C
Operating Humidity	5%-85% relative humidity, no-condensation
Dimensions (L x W x H)	586 mm x 300 mm x 171 mm
Weight	5 kg
Autosampler	
Sample Positions	120 samples (1.8mL vials)
Repeatability	< 0.3%RSD
Residue/Cross Contamination	CV < 0.01%
Sample Volume	0.1 - 100 μL
Injection Probe Cleaning	Repetitive cleaning, no time limit
Dimensions (L x W x H)	505 mm x 300 mm x 230 mm
Power	220V±10 V, 50/60 Hz
Other Specifications	
Power	220 V±10 V, 50/60 Hz
Environment Temperature	5°C - 40 °C
Environment Humidity	5% - 85% relative humidity, no-condensation
Communication Interface	RS485 (USB Optional)
Dimensions (L x W x H)	586 mm x 300 mm x 350 mm
Weight	34 kg
Power	150 W

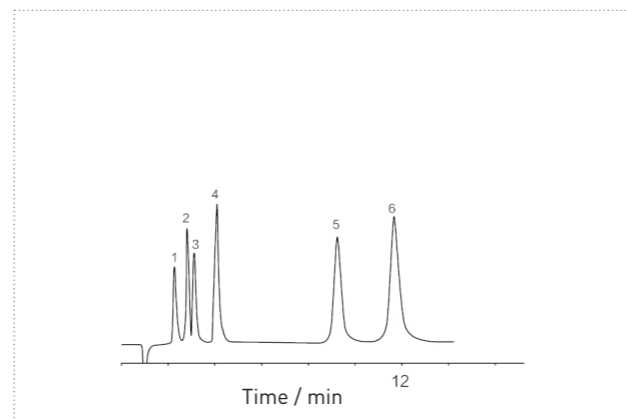
Application Chromatograms



Separation of Inorganic Anions

- | | |
|---------------------------------------|-----------------------------------------|
| 1. F ⁻ 1 ppm | 5. NO ₃ ⁻ 4 ppm |
| 2. Cl ⁻ 8 ppm | 6. PO ₄ ³⁻ 10 ppm |
| 3. NO ₂ ⁻ 4 ppm | 7. SO ₄ ²⁻ 20 ppm |
| 4. Br ⁻ 4 ppm | |

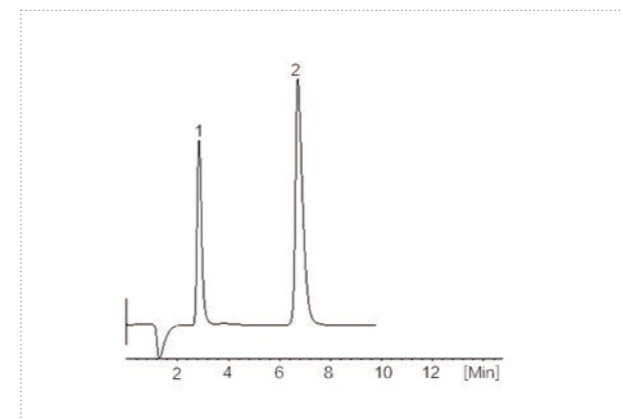
Column: Anion column 250 mm x 4.6 mm
 Eluent: 1.8 mM Na₂CO₃+1.7 mM NaHCO₃
 Flow rate: 2.0 mL / min
 Column temperature: room temperature
 Detector: Suppressed conductivity detector



Analysis of Cations

- | | |
|-----------------------------------------|-----------------------------|
| 1. Li ⁺ 0.5 ppm | 4. K ⁺ 4.0 ppm |
| 2. Na ⁺ 2.0 ppm | 5. Mg ²⁺ 5.0 ppm |
| 3. NH ₄ ⁺ 1.0 ppm | 6. Ca ²⁺ 8.0 ppm |

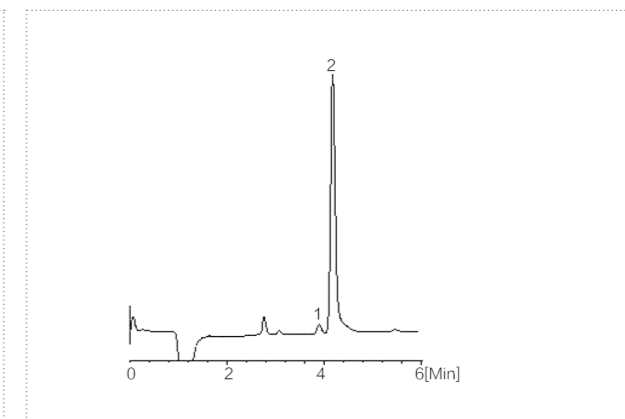
Column: Cation column 150mm x 4.6mm
 Eluent: 16mM MSA
 Flow rate: 1.0 mL / min
 Column temperature: room temperature
 Detector: Suppressed conductivity detector



Analysis of Acetic Acid and Hydrochloric Acid in Electrolyte

1. Acetic acid 2. Hydrochloric acid

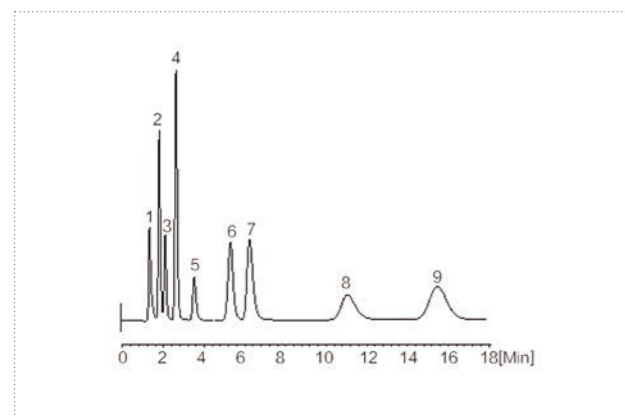
Column: Anion column 250 mm x 4.6 mm
 Eluent: 14 mmol / L NaOH
 Flow rate: 2.0 mL / min
 Column temperature: room temperature
 Injection volume: 20μL
 Detector: Suppressed conductivity detector



Separation of Bromate and Chloride

1. Bromate 10ppb 2. Chloride 10 ppm

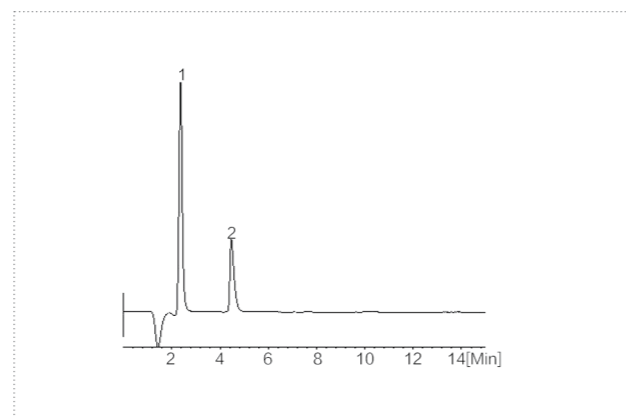
Column: Anion column 250 mm x 4.6 mm
 Eluent: 0.9 mM Na₂CO₃ + 0.85 mM NaHCO₃
 Flow rate: 2.0 mL / min
 Column temperature: room temperature
 Detector: Suppressed conductivity detector



Simultaneous Separation of 9 Anions

- | | |
|------------------------------------------|-----------------------------------------|
| 1. F ⁻ 0.5 ppm | 6. Br ⁻ 6 ppm |
| 2. ClO ₂ ⁻ 1.5 ppm | 7. NO ₃ ⁻ 6 ppm |
| 3. BrO ₃ ⁻ 1 ppm | 8. PO ₄ ³⁻ 10 ppm |
| 4. Cl ⁻ 6 ppm | 9. SO ₄ ²⁻ 10 ppm |
| 5. NO ₂ ⁻ 4 ppm | |

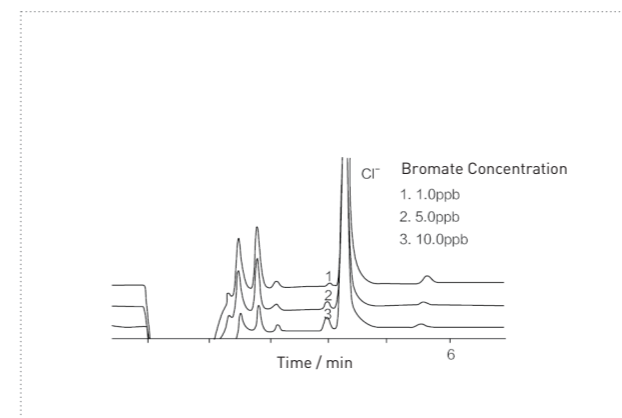
Column: Anion column 250 mm x 4.6 mm
 Eluent: 18 mM Na₂CO₃ + 1.7 mM NaHCO₃
 Flow rate: 2.0 mL / min
 Column temperature: room temperature
 Detector: Suppressed conductivity detector



Detection of Halogen Ions in Electronic Products by Oxygen Combustion -IC Method

1. Cl⁻ 376 ppm 2. Br⁻ 94 ppm

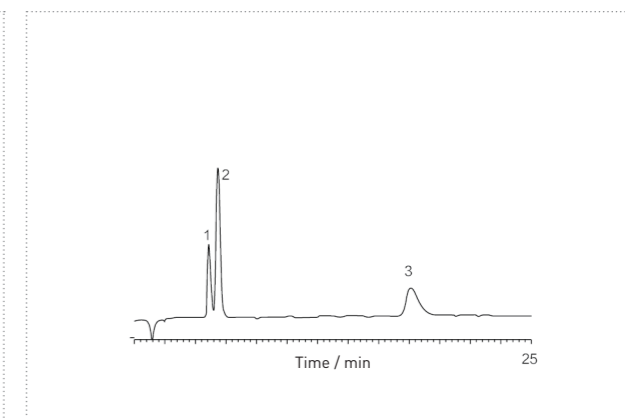
Column: Anion column 250 mm x 4.6 mm
 Eluent: 18 mM Na₂CO₃ + 1.7 mM NaHCO₃
 Flow rate: 2.0 mL / min
 Column temperature: room temperature
 Detector: Suppressed conductivity detector



Analysis of Bromate

1. 1.0 ppb 2. 5.0 ppb
 3. 10.0 ppb

Column: Anion column 250 mm x 4.6 mm
 Eluent: 1.2 mmol / L NaOH
 Flow rate: 1.6 mL / min
 Column temperature: room temperature
 Injection volume: 100 μL
 Detector: Suppressed conductivity detector



Analysis of Sulfur Speciation

1. SO₃²⁻ 10 ppm 2. SO₄²⁻ 20 ppm
 3. S₂O₃²⁻ 15 ppm

Column: Anion column 250 mm x 4.6 mm
 Eluent: 3.6 mM Na₂CO₃ + 1.7 mM NaHCO₃
 Flow rate: 2.0 mL / min
 Column temperature: room temperature
 Detector: Suppressed conductivity detector