

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 Inspection Lab
Coal Mine Analyzers
Data Processing Workstations
LIMS Laboratory Information Management System



LC-5520

High Performance Liquid Chromatograph
EAST & WEST ANALYTICAL INSTRUMENTS, INC.

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Company Introduction

Simply Precise

Founded in 1988 by two senior engineers, East & West Analytical Instruments, Inc. (EWAI) has over 30 years of experience in providing a wide range of analytical solutions to fulfill its customer’s needs.

From the beginning, innovation has been at the core of our business. With the introduction of GC-MS 3100 in 2007, we were 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, HPLC, 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.

Our Slogan

Simply Precise

Our Mission

Integrating the best ideas and methods of the East and the West to achieve excellence in the analytical instruments industry.

Our Core Values

Decency
Dedication

Teamwork
Pioneering



Features

- Microcomputer controlled wavelength selection, temperature control, semiconductor refrigeration column oven.
- Building block liked modular design: standing vertical column oven design with novel look, allows convenient column installation.
- Allow quick switching between analytical LC and semipreparative LC.

High Performance Variable Wavelength UV-Visible Detector

- Patented differential refractive index technology, ensures very low noise and drift.
- 20mm super light pathlength detection cell, enables high detection sensitivity.
- New optical design, concave holographic grating, high stability.
- Multi-wavelength 10-segment time program, full band pump-stop scanning, allows accurate selection of the best detection wavelength.
- Direct digital-to-analog conversion, R232 interface output, RS485 communication protocol for control interface
- Long lifespan D2 lamp, working for more than 2000 hours.

High precision standing typed isothermal column oven

- Features automated or manual switching between flame and graphite furnace in less than 2 seconds.
- Can accommodate any 2 analytical columns (15cm, 25cm, 30cm), compatible with semipreparative column.
- Advanced semiconductor refrigeration temperature control, suits low temperature separation of biological samples and samples susceptible to higher temperature degradation.
- Column installation and replacement becomes more user-friendly, with consideration on semipreparative column installation.

High pressure infusion pump

- Double plunger reciprocating large stroke high pressure pump, high pressure, wide flow rate range.
- Software program control, enables dual-pump gradient elution.
- Imported integrated check valve, easy replacement for plunger rod and sealing ring.
- Equipped with online automatic plunger rod cleaning function.
- Split 4-ports fitting, with dedicated bubble removal port, for easier bubble removal operation.

Chromatographic workstation

- Mandarin and English operation interface, meet requirements of national & international customers.
- Intuitive software control functions; for easy control of pump, detector, column oven.
- Power data processing function, allows various type of quantitative algorithm.
- Powerful chromatogram comparison function.
- User-friendly calibration curve function.
- Record chromatogram raw data and related information; meets GLP requirements.
- Customizable report output format.

Technical Specifications

High Pressure Pump		UV-Vis Detector	
Working pressure	0-42MPa	Light source	Deuterium lamp
Flow range	0.001 - 15.00 mL/min (maximum flow 50.00 mL/min, suitable for semi-prep)	Wavelength range	190nm~700nm
Flow accuracy	RSD < 0.1%	Spectral bandwidth	5nm
Gradient range	Isocratic, binary gradient	Wavelength indication error	±0.5nm
Set value error of pump flow	±0.2%	Wavelength accuracy	≤0.2nm
Column Oven		Wavelength scanning	Multi-wavelength programming (10 wavelength ranges)
Temperature range	Semiconductor cooling 5℃~80℃ (ambient temperature <25℃)	Range of linearity	> 10 ⁴
Temperature accuracy	±0.5℃	Noise	<5×10 ⁻⁵ AU
Temperature stability	≤0.2℃/h	Drift	< 2.5×10 ⁻⁴ AU /30min
Column oven volume	Can fit 2 columns simultaneously, compatible with semipreparative column	Cell width	20mm
		Minimum detectable concentration	4×10 ⁻⁸ g/ml (naphthalene)

EL-100 Evaporation Light Scattering Detector Features

- Appearance and structure: more compact and modern structure design; front panel LCD displays real-time instrument’ s status; detector can be controlled by the instrument’s front panel keys or workstation software.
- High-efficiency atomizer: gas-liquid separation double-hole quartz atomizer, relies on high-pressure constant flow pump to deliver mobile phase to make aerosol more stable. Collision ball equipped at the front of atomizer improves atomization efficiency, and small aperture at carrier gas outlet significantly reduce gas consumption, easy installation and blockage proof.
- Low temperature evaporation drift tube: heating layer is close to the outer wall of drift for faster heating. Precise temperature sensor and sensitive over-temperature protection device, gives high evaporation efficiency.
- Stable LED light source: utilizes adjustable constant current powered LED as the incident light source, for more stable light intensity; reduces instrument baseline noise and drift, and improves detection accuracy.
- PMT detection cell: using a high-magnification side window type photomultiplier tube as signal collection device. Front end is equipped with optical lens and diaphragm, shields interfering stray light to make the detection more accurate.
- Compatibility: matches perfectly with LC-5510, LC-5520 HPLC systems; also can be used with HPLC systems from any other manufacturers.

EL-100 major technical specifications	
Evaporation area temperature range	Room temp ~ 110°C
Temperature control precision	±0.5°C
Temperature control increment	1°C
Gas input pressure	0.2-0.5MPa
Gas requirements	Dry and clean N ₂ or air
Solvent flow rate	10 μL/min ~ 3 mL/min
Gas flow rate	300mL/min ~ 1.5 L/min
Light source	450nm blue LED
Detection element	Photo multiplier tube
Detection limit	<1 ng (glucose, direct injection)
Noise level	<0.1 mV (1mL/min)
Instrument dimensions	Length width height: 580×170×480



EL-100 Evaporative light scattering detector

Baseline and noise of EL-100 Evaporative light scattering detector

Column: C18, 5μm, 150×4.6mm
Mobile phase: methanol: water (9+1) solvent
Evaporation temperature: 40 °C

Column temperature: 25 °C
Flow rate: 1mL/min
Carrier gas flow rate: 700mL/min

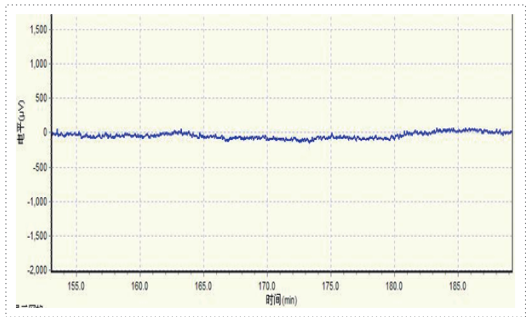


Diagram 1. Baseline noise and baseline drift test

As shown in Diagram 1, baseline noise < 100μV, baseline drift < 200μV/30min.

According to calculation method of minimum detection concentration, the minimum detection concentration of cholesterol is 0.12 μg / mL as calculated based on the data in Fig. 2. National Measurement and Verification Procedure stipulates that baseline noise ≤ 1mV, baseline drift ≤ 5mV /30min, quantitative repeatability ≤ 4.0%, and minimum cholesterol detection concentration ≤ 5μg / mL.

Detection limit of cholesterol by EL-100 evaporative light scattering detector

Column: C18, 5μm, 150×4.6mm
Mobile phase: Methanol((HPLC grade)
Carrier gas type: N₂
Evaporation temp: 35 °C

Column temp: 25 °C
Flow rate: 1mL/min
Carrier gas flow rate: 700mL/min
Sample: 5μg/mL Cholesterol methanol solution

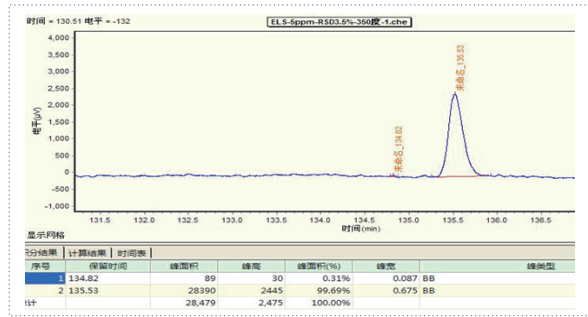


Diagram 2. Chromatogram of 5μg/mL cholesterol methanol solution

Package product

PCRM-120 Post Column Reaction Module features

- Easy connection to LC.
- Modular design, number of derivatization pump is configurable, and derivatization pump can be used as a LC infusion pump
- Temperature controller and derivatization device adopt standing integrated structure, noiseless and high precision.
- Sealed system, high pressure resistance.
- Built-in high-efficiency pulse damper, low pressure pulse.
- Specially designed mixer, ensures full mixing of derivatization reagent with target substance, for complete derivatization.
- LCD screen displays pressure and system flow rate, can set flow rate and pressure directly on control panel.
- Derivatization pump equipped with automatic over-pressure shut down function



PCRM-120 Post Column Reaction Module

PCRM-120 Post Column Reaction Module	
Operating temperature:	Room temp +5 °C -120 °C
Setting precision:	0.1 °C
Temperature precision (full range)	≤0.5 °C
Temperature repeatability (full range)	±0.5 °C
Volume of derivatization tube	Derivatization tube with different volume can be selected

Derivatization pump	
Working pressure	0-42Mpa
Flow range	0.001-15.0mL/min
Flow accuracy	RSD<0.1%
Setting error of pump flow rate	±0.2%
Setting error of flow value	±0.5%
Flow stability error	≤0.5%

Application standards for Post Column Reaction Module

Amino acid	Determination of amino acids in animal feed
Amino acid	National Food Safety Standard Determination of amino acids in food
Aflatoxin	National Food Safety Standard Determination of aflatoxin M1 in milk and milk products
Aflatoxin	National Food Safety Standard Determination of aflatoxin Groups B and G in foods
Furantan	Standard test method for drinking water - pesticide index
Glyphosate	Standard test method for drinking water - pesticide index
Menadicarb	Standard test method for drinking water - pesticide index
Aminomethyl phosphonic acid	Standard test method for drinking water - pesticide index
Metway	Determination of organophosphorus, organochlorine, pyrethroid and carbamate pesticides in vegetables and fruits
Carbamate	Soil and sediment Determination of carbamate pesticides post-column derivatization
Pesticide	National Food Safety Standard Determination of residues of 15 types of Urea typed Herbicides substitution, such as Febuuron, etc. by liquid chromatography (Implemented on 2017-6-18)
Aflatoxin	Determination of Aflatoxin in Chinese Herbal Pieces

AS-401 自动进样器

Specifications	
Sample positions	2×60 positions, 1.8 mL vials
Minimum injection volume	0.1 μL (250μL standard sample pump)
Injection pump	100 μL, 250μL (standard), 1 mL ...
Sampling loop volumn	100μL (standard), 20μL, 50μL, 200μL (options)
Switching rate of sampling valve	< 100 ms
Position accuracy	< 0.3 mm
Motion control method	XYZ 3-dimension coordinate system
Injector cleaning method	Inside and outside rinse, no restrictions on rinse times
Number of replicates	No restrictions on replicates
Dimensions	300 (W) × 230 (H) × 505 (D) mm
Power	AC 220 V, 50 Hz
Compatibility	Compatible with all commercial HPLC / IC systems
Temperature range	10 - 40℃
pH range	1-14

DM-100/DM-101 Online Degasser

Applications

Compatible to all HPLC, easy to install

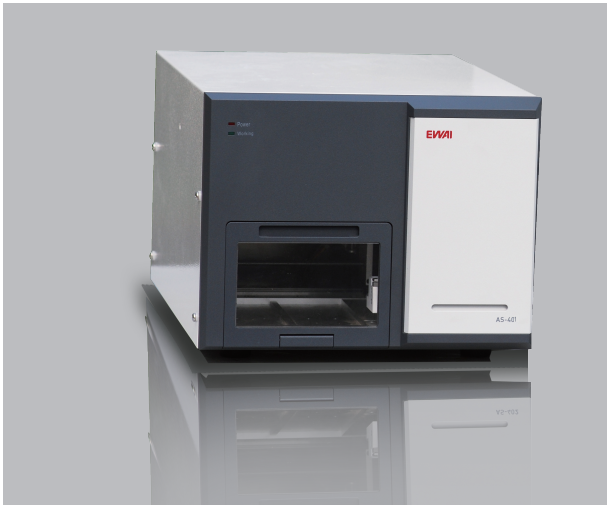
Features

High degassing efficiency, smooth baseline, no drift, and low noise

Basic Configuration

Single-channel, three-channel or four-channel degassing systems are available.

Degasser is available in a horizontal or vertical orientation according to customer requirements



AS-401 HPLC Autosampler



DM-100/DM-101 Online Degasser

Application

Determination of Astragaloside IV by EL-100

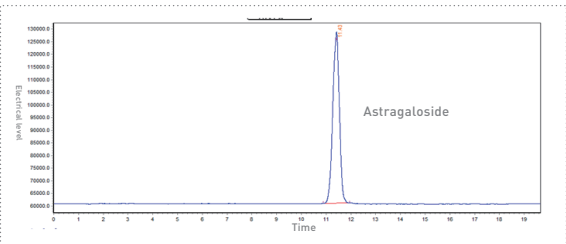


Diagram1 Chromatogram for analysis of 250ppm Astragaloside standard sample

Column: Inertsil C18 4.6*250mm

Mobile phase: 35%ACN

Flow rate: 1ml/min

Injection volume: 20ul

Drift tube temperature: 70℃

Gas flow rate: 900ml/mim

EL-100 Determination of oleanolic acid, ursolic acid

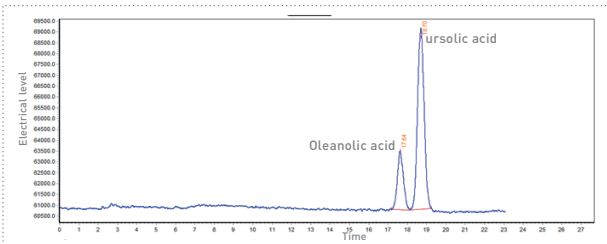


Diagram2 Chromatogram for analysis of 50ppm oleanolic acid and 100ppm ursolic acid standard sample

Column: Inertsil C18 4.6×250mm

Mobile phase: methanol-0.2% acetic acid(88:12)

Flow rate: 1mL/min

Injection volume: 20μL

Drift tube temperature: 60℃

Gas flow rate: 900mL/mim

Determination of Ginkgo leaf extract by EL-100

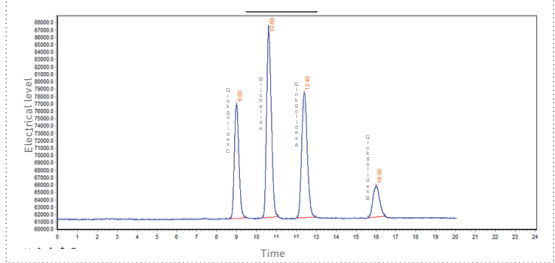


Diagram3 Chromatogram for analysis of Ginkgo leaf extract

Mobile phase: Methanol-Tetrahydrofuran-Water(25:10:65)

column: Inertsil C18 4.6×250mm

sample:

Ginkgolides A 236ppm

Ginkgolides B 92ppm

Ginkgolides C 176ppm

Bilobalide 252ppm

Drift tube temperature: 65℃

Gas flow rate: 900ml/mim

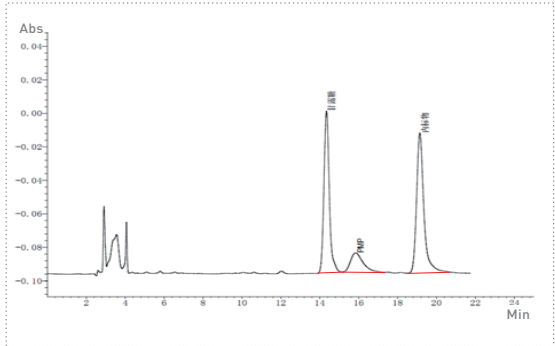


Diagram5 Chromatogram for analysis of Mannose in Dendrobium candidum

Column: Inertsil C18 4.6×250mm

Mobile phase: Acetonitrile-0.02mol/l ammonium acetate (2:8)

UV detector: 250nm

Determination of polycyclic aromatic hydrocarbons by UV detector

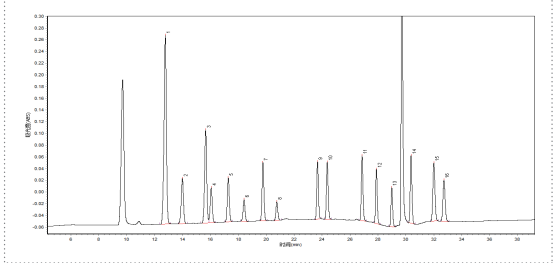


Diagram4 Chromatogram for analysis of 16 polycyclic aromatic hydrocarbons standard sample (3ug/ml)

Column: Inertsil C18 4.6×250mm

Mobile phase: Acetonitrile and Water (gradient elution)

UV detector: multiband time programming

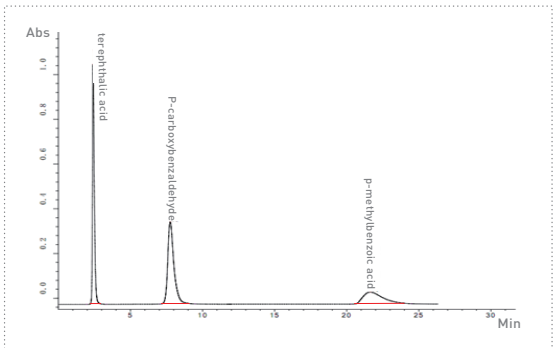


Diagram6 Chromatogram for analysis of P-carboxybenzaldehyde and p-methylbenzoic acid in purified terephthalic acid for industrial use

Column: Inertsil C18 4.6×250mm

Mobile phase: Methanol-0.02mol/l acetic acid: 1:9

UV detector: 254nm

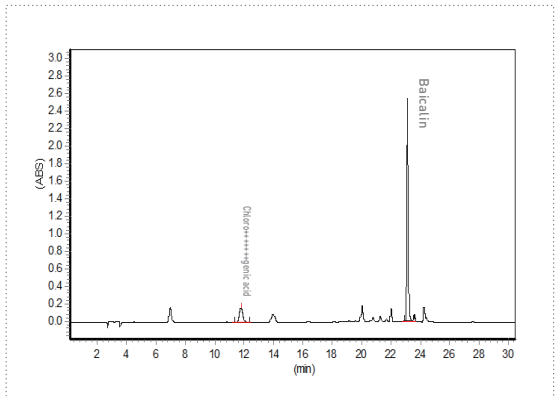


Diagram7 Chromatogram for analysis of Chlorogenic acid and Baicalin In Shuanghuanglian Koufuye

Column: Inertsil C18 4.6×250mm

Mobile phase: Acetonitrile-0.4% phosphoric acid solution(gradient elution)

UV detector: 324nm

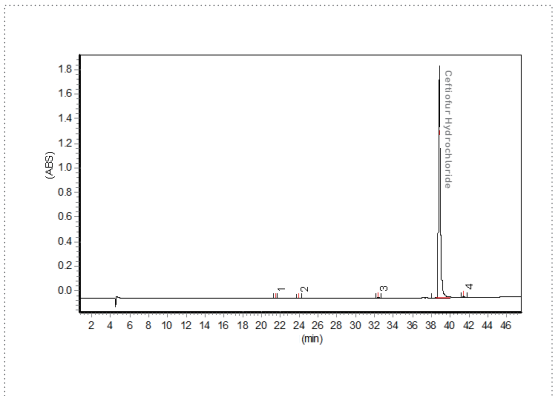


Diagram8 Chromatogram for analysis of Cefotiofur Hydrochloride In injection solution

Column: Inertsil C18 4.6×250mm

Mobile phase: Acetonitrile-0.4% phosphoric acid solution(gradient elution) Water-Acetonitrile-Trifluoroacetic acid(950:50:1)-Water-Acetonitrile-Trifluoroacetic(200:800:1) (gradient elution)

UV detector: 254nm