

LC-ICP-MS-3518

Liquid Chromatography-Inductively Coupled Plasma Mass Spectrometry



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

Product Overview

LC-ICP-MS-3158 is ultra-high performance liquid chromatography (UHPLC) system is a new generation of UHPLC system, which is developed for analysis and detection of trace organic components and furnished with industry-leading performance. Owing to its fast analysis speed and low mobile phase consumption, the instrument considerably enhances the efficiency of mass sample detection and analysis, and facilitates a wide application to food, medicine, environment, chemistry, public security, scientific research and so on.

Self-innovative, intelligent and high-efficiency
A perfect choice of high-quality UHPLC!

Consistent stability but leap in speed

Withstanding pressure up to 20,000 psi to enable an ultralow delay volume

High precision control ensures extremely high accuracy

Binary ultra-high pressure mixing to achieve high precision gradient control

Automatic, efficient, intelligent and convenient

Multiple modes optional to permit automatic injection in a wide range

Multiple options, sensitive perception

Various detectors available to meet diverse applications

Intelligent interconnection, security and compliance

Supporting stand-alone / network deployment, securing data and assuring compliance



HIGH PRESSURE MIXED BINARY GRADIENT PUMP

Synchronous control with high precision ensures accuracy and stability

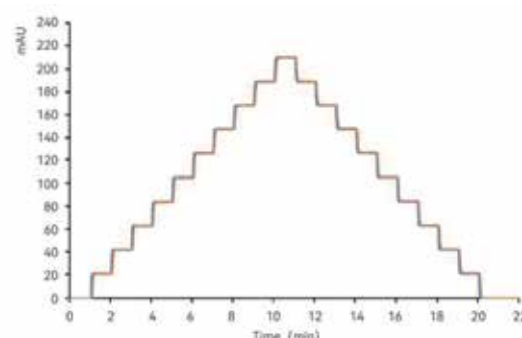
Double plunger series binary pump

The advanced binary double plunger series design provides an independent high-load linear driver for each plunger. This, together with the high-precision double plunger cooperative control technology, gives the system ultra-high pressure and extremely low pulsation characteristics.



High gradient accuracy and repeatability

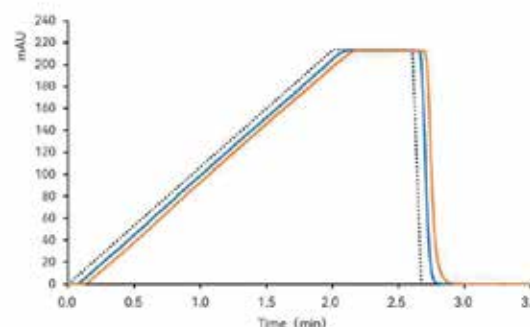
High-speed binary double synchronous control, together with the solvent compression automatic compensation algorithm, ensures the binary gradient high-precision control and excellent separation repeatability of chromatographic system. The mobile phase selection function supports the binary combination selection of four mobile phases and fast switching.



Step gradient of mobile phase B from 0% to 100% and from 100% to 0%

Low-system delay volume

The high-precision binary gradient control technology allows mobile phase components to be directly mixed under high pressure through a lowvolume mixer without pulse damper. In this way, the delay volume (<100 μ L) caused by the tubing before the system column is greatly reduced, and the analysis efficiency under low flow is effectively improved.

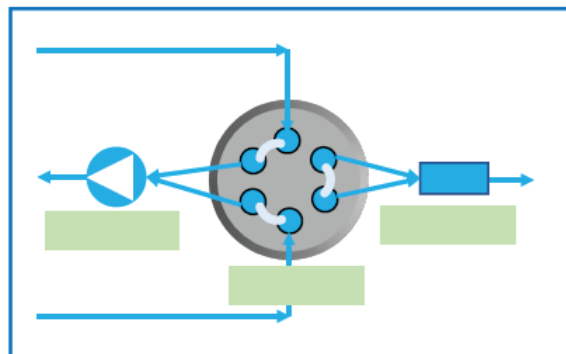


The mobile phase B shows a rapid linear gradient change from 5% to 95% within 2min, and then it is balanced to the initial 5%B within 20s; Orange - 0.5mL/min, blue - 1.0mL/min.

Multifunctional integrated design provides ease of use and reliability

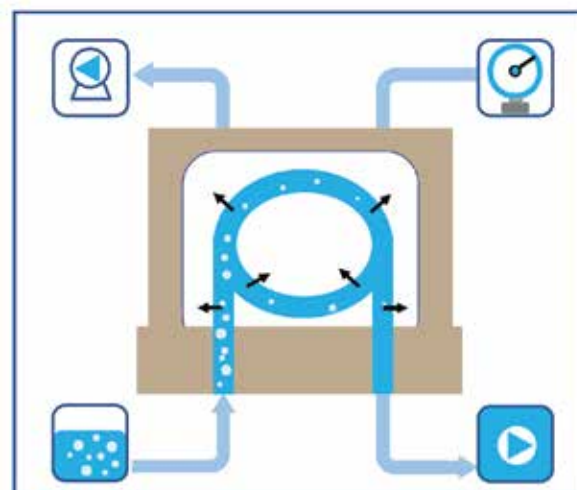
One-button solvent filling and venting

A solvent filling pump and venting switching valves are equipped to perform solvent filling and air venting automatically by one-button operation on liquid phase software. It is more convenient and faster.



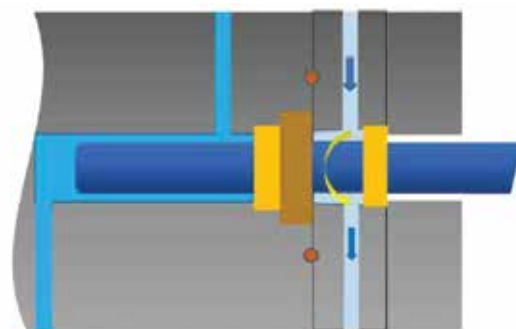
Multi-channel mobile phase online degassing

Multi-channel flow-through vacuum degassing unit is equipped to realize continuous on-line degassing and ensure high degassing efficiency, stability and durability. By effectively eliminating the bubbles entrained by the mobile phase, the unit maintains the low-noise and stable operation of each mobile phase.



Automatic cleaning of high-pressure sealing parts

The high pressure cavity of the pump adopts double seal design to form an independent seal cleaning cavity. The seal cleaning liquid pump regularly pumps cleaning liquid to the seal cleaning cavity and automatically cleans the sealing ring. This method reduces the potential wear risk of buffer salt to high-pressure sealing ring and plunger rod, and effectively prolongs the working life of plunger rod and high-pressure sealing ring.

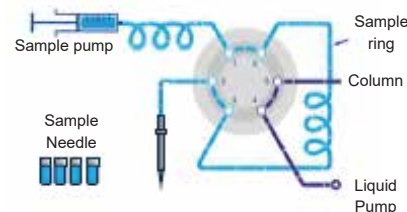


HIGH PRECISION AUTOSAMPLER



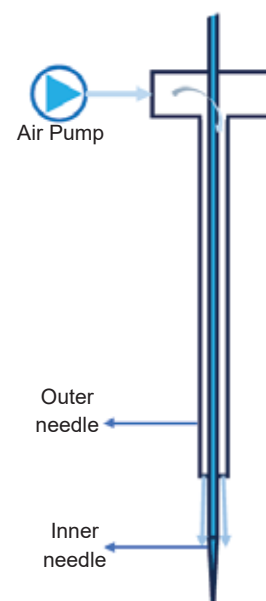
High precision injection flow path

- Advanced injection flow path, together with high-precision injection components and control system, realizes the micro-upgrade and precision injection.
- Multiple injection modes (full loop injection, partial loop injection and microliter injection) are supported. The injection volume can be programmed with flexible adjustment.
- Headspace pressure-assisted injection technology can effectively suppress the potential bubble interference in the sample tubing and ensure the accuracy and repeatability of the injection volume.



Low residue needle washing technology

- The programmable needle washing can effectively eliminate sample residues, and even achieve zero residue effect, the cleaning solution washing and air blowing of injection needle, thus effectively avoiding the risk of cross-interference between samples.



Injection valve with pressure buffering function

- The injection valve specially designed with pressure buffer function greatly shortens the flow path cutoff time caused by the switching of injection valve, and effectively restrains the instantaneous pressure drop of flow path caused by the switching of injection valve, thus protecting and prolonging the service life of chromatographic column.

Large-capacity sample compartment

- Double-plate large-capacity sample cavity structure supports 48, 96, 384-position sample plates with different specifications, adapts to different sample capacity requirements and provides flexible applications. The sample cavity refrigeration temperature control modules are optional to meet the application requirements of perishable biology and clinic samples.



INTELLIGENT THERMOSTATTED COLUMN OVEN

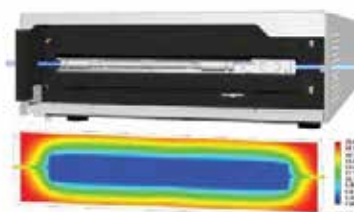


Fast temperature equalizing technology

The column oven with efficient temperature equalizing technology can quickly rise temperature to the set target value, shorten the heating time and improve the analysis efficiency.

Stable temperature control

High-precision temperature sensor and advanced temperature control technology, coupled with pre-heating design before the column, will accurately control the column temperature and maintain the column temperature uniformity, effectively ensuring the stability and repeatability of chromatographic separation. Its refrigeration function will effectively prevent the denaturation or decomposition of heat-sensitive components, and meet diverse sample detection requirements.



Omni-directional self-protection function

Built-in liquid leakage detection sensor and overheat protector, as well as multi-dimensional monitoring and early warning functions such as liquid leakage alarm, heating overtime detection, overheat protection, etc. will detect temperature anomalies in time and give early warning, so as to ensure the stable operation of the system, and protect the safety of columns and samples.

Multiple configuration options

Different oven specifications (single-column, six-column, etc.) are available depending on the application needs. Single-heating control and refrigerating-heating double control are also optional. The refrigerating-heating double control column oven further expands the temperature control limit of the low-temperature end, and well fits the application requirements of easily thermally decomposed samples in clinical fields. .



HIGH-RESOLUTION AND WIDE-SPECTRUM DAD DETECTOR



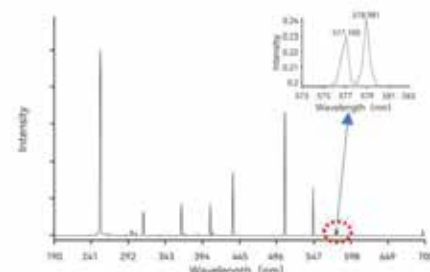
High-luminous efficiency and low diffusion flow cell

Sub-microliter (500nL) liquid-core waveguide flow cell-offers high light transmission efficiency, while giving-considerations to small-volume low-peak diffusion and small-diameter high light flux. It enables good detection sensitivity and a linear dynamic range up to 2.5AU. The quick-release structure design and electronic ID provide more convenient use of the flow cell and better data-traceability.



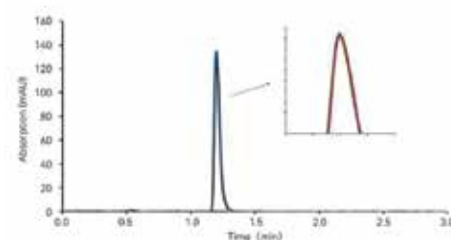
High-wavelength resolution optical detection

The optical design of holographic concave grating and the use of 2048 pixel array detector make the wavelength resolution better than 0.5nm. Automatic exposure time optimization function provides guarantee for finer absorption spectrum and more convenient data acquisition. High-resolution spectrogram data is beneficial to peak purity and library retrieval, and is helpful to sample analysis and impurity identification for complex components.



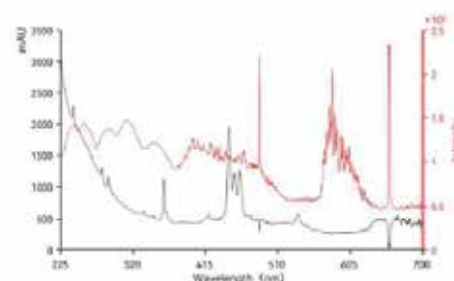
High-speed and high-precision data acquisition

MHz high-speed and high-precision sampler ensures high SNR when the ultra-high-speed sampling frequency is as high as 250Hz. High-resolution/highperformance dual-mode switching design will quickly and accurately restore the chromatographic peak shape, and cooperate with CDS software to realize fast data storage, data security and audit trial.



Multiple stability assurance technologies

The switchable wavelength calibration filter enables automatic wavelength inspection and correction, and enhances the long-term use stability of the instrument. The switchable ultraviolet cut-off filter prevents the sample from decomposing and ensures the analysis stability. Advanced temperature management strategy ensures the stability and reliability of the instrument.



NETWORKED CHROMATOGRAPHIC DATA



User operation interface

The software interface of chromatographic system is easy to understand and use. The simple operation will effectively improve the user's work efficiency.



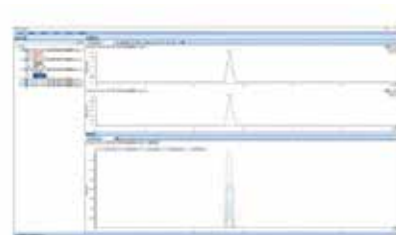
Achievable networked application deployment

Stand-alone or networked application may be flexibly deployed as appropriate. In case the communication with the data server is temporarily interrupted in the networked application deployment mode, the instrument controller will still run continuously, cache data, and maintain the stability



Easy data processing and display

A range of data processing functions, such as automatic peak identification, automatic peak area integration, peak height measurement and retention time statistics, provide excellent convenience and efficiency. Intuitive data visualization methods, such as chromatogram, peak diagram and spectrogram, as well as the generation of professional reports, facilitate the presentation



High-data security compliance environment

The multi-level authority management function only allows the authorized personnel to access relevant records. The audit trail function covers user rights management, operation logging, data audit trail, electronic signature, etc., to ensure the traceability, data security and compliance of the experimental process and sharing of results.

APPLICATIONS

Food safety

Nutritional components: analysis of sugar, organic acids, vitamins, protein, amino acids, fat, etc.

Food additives: analysis of preservatives, antioxidants, synthetic pigments, sweeteners, etc.

Hazardous substances: analysis of pesticide residues and microbial metabolites (e.g. aflatoxin).



Life & pharmaceuticals

Biomedicine: purification and analysis of amino acids, peptides, protein, bases, nucleosides, nucleotides and nucleic acids.

Synthetic drugs: purification and quality control of synthetic drugs; study on genetic impurities, solvent residues and pharmacokinetics.

Herbal medicinal ingredients: separation, preparation and purity determination of effective herbal medicinal ingredients; analysis of pesticide and veterinary drug residues.



Environment & health

Environmental water quality: analysis of naphthol, mesotrione, ethylenethiourea, benzidine, anionic surfactant and organic pesticide.

Soil solid wastes: component analysis of polycyclic aromatic hydrocarbons, organic pesticides, aldehydes, ketones and carbamates.

Ambient air: analysis of aldehydes, ketones, phthalates, benzo [a] pyrene and amides.



Chemical synthesis

Petrochemical industry: analysis of saturated hydrocarbon, aromatic hydrocarbon, FAMES, antioxidant, anti-icing agent and antistatic agent.

General chemicals: content analysis and impurity detection, involving intermediates, polymers and chiral analysis in organic synthesis.



OPTIONS

Optional Column Oven

- **CH 3518:** Single column, single heating with constant temperature control
- **CH 3582:** Single column, refrigerating-heating double temperature control



Optional Column Oven

- **CH-3518:** 6-column, without switching valve, single heating constant temperature control
- **CH 3586:** 6-column, with switching valve, single heating constant temperature control



OTHER INTEGRATED SOLUTIONS

Collocating with MS/MS

LC-MS/MS: Enables the rapid analysis of trace organic matter, and is widely used in food safety, medical research, public security and justice, environment, health, etc.



Collocating with ICP-MS

LC-ICP-MS: Enables the speciation analysis of metal elements, and is widely used in food safety, environment, health, public security and justice, etc.



HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings : We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

AMC's/CMC : We offer user training both in-House and at customer sites on HPLC principles, operations, troubleshooting.

Validations : We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

Instruments : We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.



About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufaturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

Our Products & Technologies



LCMS



Automated Prep-Flash
Chromatography system



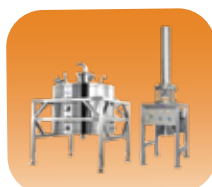
Maldi TOF



Optima Gas
Chromatograph



Flash
Chromatograph



DAC
Column



GCMS
3068



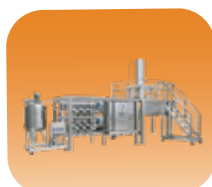
UHPLC



HPTLC



Ion Chromatograph



Production
HPLC



HPLC



Column



DLS



Water purification
system

▶▶▶ Regulatory compliances



▶▶▶ Corporate Social Responsibility

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Analytical Foundation

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2. Improving quality of life by offering **YOGA Training courses, Work shops / Seminars** etc.

3. **ANALYTICAL FOUNDATION** aims to DETOXYFY human minds, souls and body by means of Yoga, Meditation, Ayurveda, Naturecure, Health Care, Ara, Events, Camps etc.

▶▶ A portion of profit of **ANALYTICAL GROUP** Company's goes into **ANALYTICAL FOUNDATION** for the above noble cause.

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