

High Pressure Liquid Chromatography - Atomic Fluorescence Spectrum (HPLC-AFS)

As rapid development of AFS, HPLC-AFS is widely used in the field of food, health and epidemic prevention, commerce dection, agriculture, drug testing, scientific research, etc.

Speciation analysis is normally an ultratrace determination in ng/L (solutions) and ng/g (solids). The AFS exhibits ultra high sensitivity for sub ng/(g or L) measurements and can be operated continuously over long periods of time making it as an excellent candidate for HPLC coupling and speciation applications.

Mercury in biological materials can exist in inorganic and organic forms; methylmercury (MeHg⁺) being most common. Methylmercury can enter the environment directly from industrial emissions or it can be produced by the biomethylation of inorganic mercury. Methylmercury accumulates in the nutritional chain and can reach substantial concentrations in the muscle tissue of predatory fish, for example.

For elements that exist in several oxidation states, the tendency to form complexes and to sorption is very different and depends among other things on the pH of the system. This offers the possibility for selective determination of oxidation states. Species with highest toxicity (As³⁺, Se⁴⁺, etc.) form the most stable complexes with DDTc and can thus be determined directly via sorbent extraction with C18, thereby allowing speciation analysis.



LC-LUMINA 3600

Features

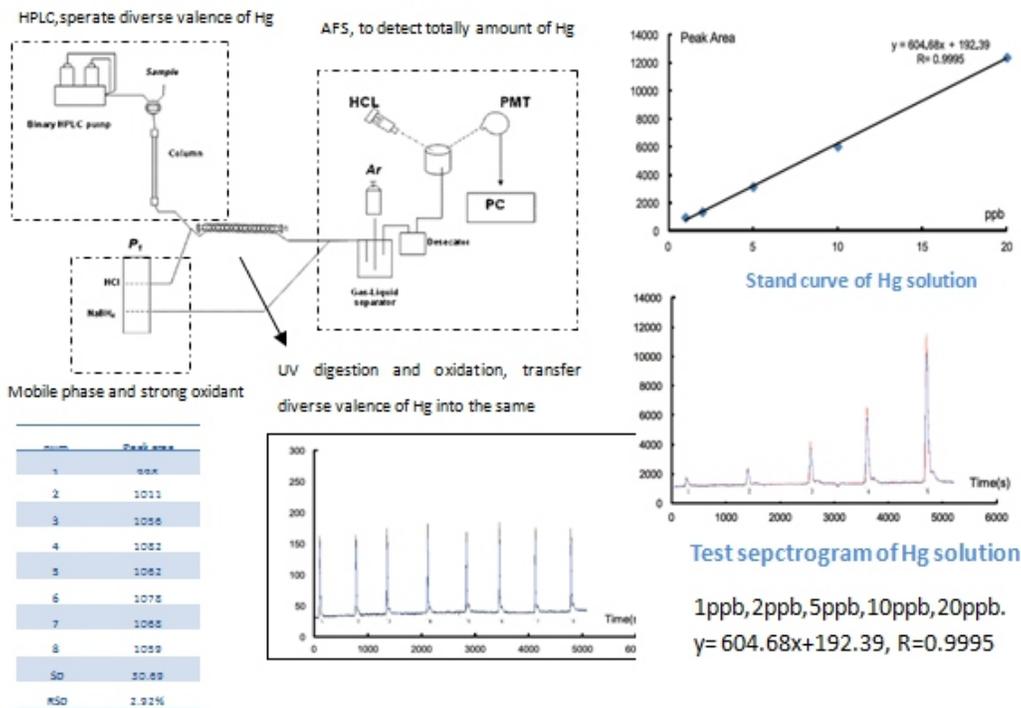
- The high pressure infusion pump adopts double plunger series reciprocating pump, the flow precision is <0.5%, the reproducibility is 0.2%, and the maximum pressure can be set to protect the pump.
- Suitable for C18 column (suitable for Hg morphological analysis) and PRP-X100 anion chromatography column (suitable for As morphologic analysis) and so on
- The on-line digestion device adopts the ultraviolet digestion lamp of quartz tube, the quartz tube in the lamp is irradiated by multidimensional ultraviolet light, and the illumination is enhanced and the efficiency of digestion is greatly improved
- The six channel peristaltic pump and two pressure tube clamp pressure regulating continuous sampling system are adopted for the atomic fluorescence host to reduce the signal drift and liquid phase interference, and improve the signal to noise ratio.
- Atomizer uses steam / hydride generator, double layer quartz tube, argon hydrogen flame automatic ignition, and equipped with high efficiency multistage reaction mixer and two stage gas-liquid separator to reduce interference and improve detection sensitivity.
- Four the double channel detection system of the lamp holder can realize the simultaneous determination of two elements or single element sequence, so as to improve the detection efficiency and reduce the consumption of the samples.
- Short focal length non dispersive optical system, integrated sealing, increasing fluorescence reflection, reducing light interference, improving the sensitivity and precision of instrument measurement
- Special data processing software, with powerful spectrum processing function, simple and convenient operation

Configuration

- ✓ **Seperation & Processing Module:** including high pressure infusion pump, manual injection valve, chromatographic column, on-line reaction and ultraviolet digestion device. Autosampler is optional.
- ✓ **Atomic fluorescence spectrometer**
- ✓ **Data acquisition and processing software**

Qualitative & Quantitative Analysis

Speciation	Minimum Detectable Amount (ng)	Analysis Time (min)	Accuracy (RSD)	Linear Range	R ²
As	As(III)	0.04	<10	10 ³	>0.999
	DMA	0.08			
	MMA	0.08			
	As(II)	0.2			
Hg	Hg(II)	0.05	<12	<5%	>0.999
	MeHg	0.05			
	EtHg	0.05			
	PhHg	0.1			
Se	SeCys	0.3	<10	10 ³	>0.999
	SeMeCys	1			
	Se(IV)	0.1			
	SeMet	2			
Sb	Sb(V)	0.1	<10	10 ³	>0.999
	Sb(III)	0.5			



NOTE: Instrument specifications may change without notice as an ongoing effort of product improvement.

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