Aurora

Atomic Fluorescence Spectrometer

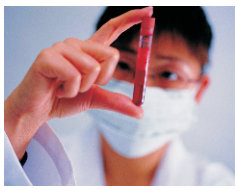
Total Solutions for Elemental Analysis

Lumina 3300

Food Safety

Agriculture

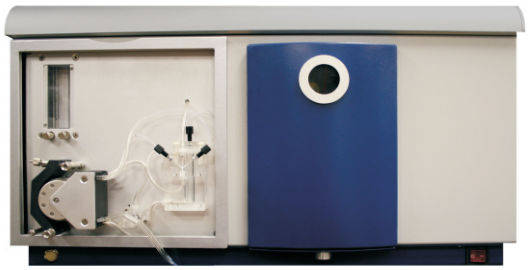
Environmental



Clinical

Lumina 3300 Atomic Fluorescence Spectrometer

A mercury analyzer and so much more!



Exceptional Quality and High Performance

As a leading manufacturer of analytical instruments for elemental analysis, Aurora has complemented its line of products with the Lumina 3300 atomic fluorescence spectrometer (AFS), specifically designed for sub-trace quantitative analysis of Mercury (Hg) and all other hydride forming elements. Lumina 3300 stands out from the conventional AFS with an innovative design which allows Hg as well as all hydride forming elements to be analyzed.

The system's advanced design offers much higher sensitivity, versatility, reproducibility and accuracy; meeting various levels of analytical expectation.

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Flexible Applications

Environmental (Hg, Pb, Cd, Zn, As, Sb, Se)
- Wastewater
- Drinking Water
- Soil and Sludge

Agriculture/ Food Safety (As, Hg, Pb, Sb, Se)
- Dairy, Wine, Meats
- Food and Animal Byproducts
- Cigarettes

Metallurgical (Ge, Hg, Se, As in Sb, Se, Te in Cu)
- Rocks and Minerals
- Steels and Alloys
- Metals

Clinical (Se, Pb, Hg, As)
- Rocks and Minerals
- Steels and Alloys
- Metals

Pharmaceutical (Hg, Pb, As, Se)
- Active Ingredients
- Fillers

Features and Benefits

Sample Introduction

Lumina 3300 offers two optional systems for sample introduction - continuous flow and sequential quantitative injection systems. Continuous flow helps reduce signal drifting and liquid phase interference, greatly increasing signal to noise ratio. Sequential quantitative injection greatly reduces the consumption of sample and reagents, eliminates signal drifting, improves detection limits and enables on-line dilution.

Vapor/Hydride Generator (VG)

Aurora's unique VG further enhances sensitivity, reduces interference, and obtains ultra low detection limits for the determination of sub-trace levels of mercury (Hg) and hydride forming elements.

Reaction/Mixing Manifold

The reaction/mixing manifold includes multi-mixing levels for easy combination. It enables unlimited flexibility in mixing patterns.

Revolutionary Gas/Liquid Separator

The high efficiency flow through design and dual stage gas/liquid separator optimizes the separation of hydride and Hg cold vapor. This design minimizes pressure fluctuations, thus enhancing the precision of the measurement.

Covered Optical Design

Shield optic design greatly reduces light interference and enhances the signal to noise ratio, increasing the sensitivity and precision of the measurement. This short focus, non-disperse and closed optic system intensifies the fluorescence signal to noise ratio.

Dual Channel Simultaneous Analyses

The light path design allows the option to select between simultaneous analyses of two elements or independent analysis of a single element, greatly increasing the efficiency of measurements and decreasing sample volume.

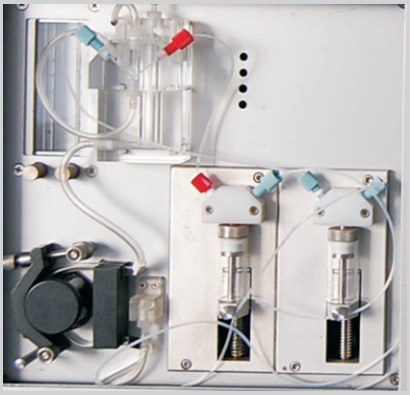
Integrated Exhaust System

The instrument's build-in exhaust system effectively blows out the waste gas/vapour into the external environment through a ventilation pipe, eliminating the need to invest in expensive lab ventilation systems.

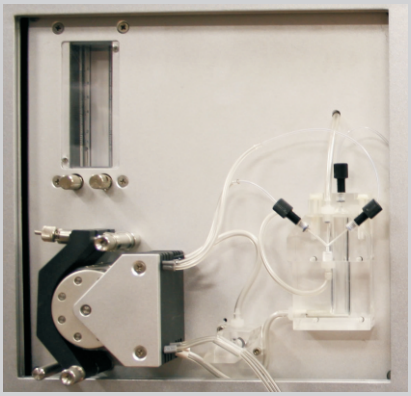
XYZ Autosampler (Optional)

The XYZ autosampler provides automatic sample introduction. It is compatible with various labware and sampling containers and is capable of handling up to 192 samples in standard sample racks.

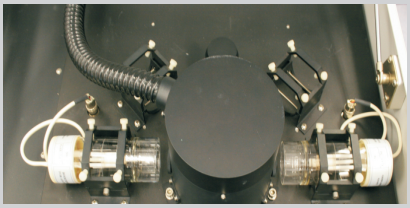
Components



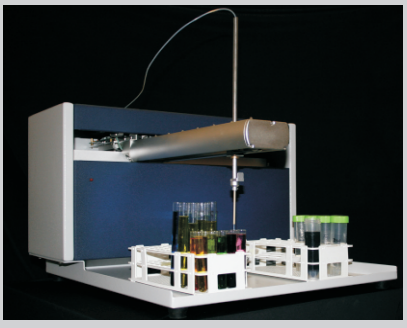
Sample Introduction by sequential injection



Sample Introduction by continous flow



Dual Channel: channel 1 for Hg and channel 2 for other hydride forming elements



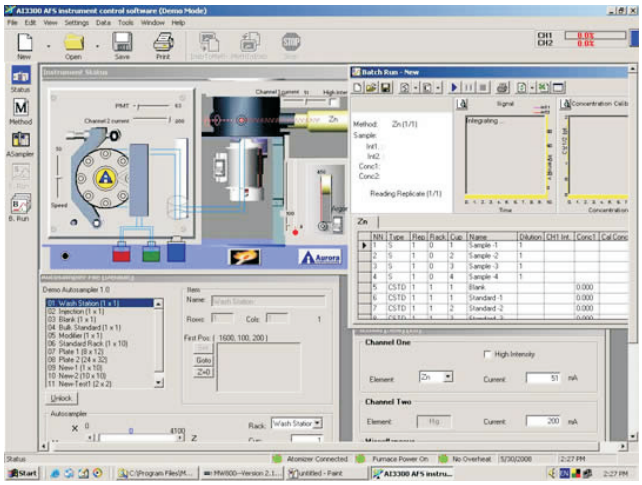
Autosampler

ISO 9001 REGISTERED

Software & Methods

User-Friendly, Windows-Based Software

This schematic software interface provides ease of operation instrument/autosampler control, and data acquisition/analysis. Method development can be tested under single run when analyzing one sample, as well as batch run when analyzing several samples and standards. It enables real-time display of fluorescence intensity against time for both channels. Allows selection of either channel1/channel2, or both channels simultaneously. Reporting formats are LIMS compatible.



Multi-windows software layout

- Method
- Autosampler
- Instrument Parameters
- Analytical Calibration Curve
- Reporting

Peak height and area measurement modes display real-time intensity of fluorescence against time for both channels

Standard Methods Compliance

The Lumina 3300 is compliant to various EPA method and it performs as per ASTM standards

EPA Method 245.7

Mercury Determination in Water

EPA Method 7474

Mercury Determination in Sediments

EPA Method 1631

Mercury in Water by Oxidation, Purge and Trap and Cold Vapour Atomic Fluorescence Spectrometry

Regulatory Standards and Certification

- RoHS and WEEE Compliant
- ISO 9001 Certified

Lumina 3300 Specifications

Sample Atomization

Atomizer:	Quartz tube furnace with automatic ignition of Ar-H_2 diffusion flame reduces interference
Carrier Gas:	Argon
Protection Gas:	Argon

Sample Preparation & Introduction

Vapor/Hydride Generator: (continous flow)	Continuous flow, peristaltic pump, and/or syringe pump sequential injection system, high performance mixing section, gas-liquid separator for cold-vapor mercury determinations and hydride generation determinations of As, Se, Te, Bi, Sb, Sn, Pb, Ge, Zn, Cd, Hg
(sequential injection)	Sequential injection, complete control of sample injection which significantly improves detection limits as well as increases reliability, eliminates drifting completely, allows sample volume to be adjusted within a big range ,has easy operation, and allows for on-line dilution
Peristaltic Pumps:	A 6-channel pump with 2 adjustable pressure control clamps and programmable speed control
Syringe Pumps (Optional):	Two syringe pumps, one for the sample and one for the reagents. Allows software control of sample introduction
Exhaust System:	Exhaust system with filter efficiently decontaminates pollutants
Gas/liquid Separator:	High efficiency, dual stage gas/liquid separator
Mixing Manifold:	Up to 5 levels of mixing and one level of draining

Optics

Optics Design:	Short focal length, non-dispersive, integrated optical design
Dual Channel:	Dual channel for sequential or simultaneous two-element analysis, using computer controlled, modulated, pulsed light sources
Light Sources:	Specially-designed high intensity Hollow Cathode Lamps (HCL) with 2 channel independent power supply, providing improved sensitivities and lower detection limits.
Detector:	High quantum efficiency, solar blind photo multiplier tube (PMT).

XYZ Autosampler

Sample Introduction:	High sample capacity, automated standard and sample introduction
Sampler Capacity:	Hosts a maximum of 192 standard cup/test tube sample racks. Also compatible with standard solvent extraction test tube, ICP test tubes and custom made trays

Detection Limit

Element	Detection Limit (ng/L)	RSD (%)
As, Se, Pb, Bi, Sb, Te, Sn	10 ppt	<1.0
Hg, Cd	1 ppt	<1.0
Zn	2000 ppt	<1.0
Ge	50 ppt	<1.0

Linear Range Over 10^3

Power Requirements: AC 220V/110V, 1100 Watts, 50/60 Hz, 5A/10A

Dimensions: (L) 66cm x (H) 38cm x (W) 48cm

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

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