

NEW
UPGRADE
AVAILABLE
Full Automation
for multi-element analysis

AA8000

ATOMIC ABSORPTION SPECTROPHOTOMETER

NOW GLP COMPLIANT



The AA8000 Atomic Absorption Spectrophotometer is a double beam with sealed and vibration free optical system, having Czerny-turner Monochromator with Holographic grating (1800 lines/mm). It's a high performance automated instrument designed to meet the requirements of the modern laboratory. Due to its versatility and performance it can be used for a wide range of applications including: Agriculture, Soil, Environmental, Food, Metal, Mining, Petrochemical, Clinical, Pharmaceutical.

The Instrument is available in three configurations:

- **AA8000F** - The Instrument is equipped with a Flame atomiser only. 3 flames are available with the air/acetylene as standard configuration and N₂O/acetylene or air/LPG (natural gas) available as an option. All 3 flame configurations offer coded burner for full safety protection.
- **AA8000G** - The Instrument is equipped with a Graphite Furnace Atomiser only. The Graphite head is fixed into the optical path to maximise performance and eliminate drift. The transversally heated graphite tube is efficiently heated and cooled due to the precision feedback system.
- **AA8000FG** - The Instrument is equipped with both Flame and Graphite Furnace Atomiser's as detailed in the previous description. Both configurations are installed into the instrument and can be changed over by a simple selection in the versatile AA-Win software.

SALIENT FEATURES

- Embedded PC system built into the instrument as standard. Windows 7 professional operating system.
- Full software control of the instrument and autosampler.
- Pre-installed AA-Win software **Now GLP and 21- CFR Part 11 Compliant.**
- Automatic 8 lamp turret controlled and optimized by the AA-Win software.
- GLP compliant software is now available for all AA8000 Configurations.
- D2 lamp and Self reversal background systems.
- High precision minimal optics ensures maximum light throughput to the computer controlled Czerny-Turner monochromator.
- High sensitivity absorbance better than 0.9abs for 5ppm Cu
- A universal autosampler is available which can be used for flame as well as graphite furnace system.
- Absorption and Emission modes are standard as well as peak height, peak area, sequential and manual integration modes.
- Auto-flame Ignition.
- **New upgrade available with Full Automation for Multi-Element Analysis.**

FLAME ATOMISER FEATURES

3 flame systems are available. Air/acetylene is the standard configuration with the N₂O/acetylene and Air/LPG as options.

Air/Acetylene

- This flame uses a 100mm single slot burner for standard configuration.
- The high sensitivity (Cu 5ppm > 0.9A) is due to the efficiency of the fixed position High Efficiency Nebuliser fitted as standard. An acid resistant replacement is available as an option.

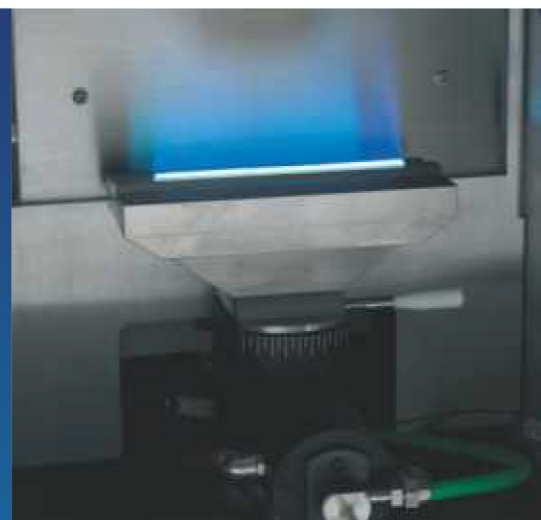
N₂O/Acetylene

- The burner for this gas has a 50mm slot and is used to measure elements less prone to ionization such as: Aluminium, Tin, Titanium, Calcium and Vanadium.
 - The switchover from air/acetylene and flame off is fully computer controlled.

Air/Propane (LPG)

- This flame uses a 3 slot burner and with the low pressure requirement it is also much safer to operate. Due to the lower temperature it is ideal for analysing alkali metals such as Potassium, Sodium and Lithium, especially when used in the Emission mode.
- There are some remote areas in the world that have difficulty obtaining acetylene or even a high enough purity to operate the flame, so LPG can give a real alternative and offer comparable results throughout the wavelength range.
- **Safety Features**
 - Gas Pressure Monitoring for all gasses
 - Burner Identification
 - Flame Sensor
 - Drain Trap level Sensor
 - Gas Leak Detector
 - Safety cut off switch

AA8000
Atomic Absorption Spectrophotometer





GRAPHITE FURNACE ATOMISER FEATURES

- The graphite furnace atomiser is available in 2 Models:
 - In the AA8000G instrument the graphite furnace head is fixed into the light path.
 - In the AA8000FG instrument the graphite furnace head is positioned automatically into the light path by a simple operation in the AA-Win software.
- Furnace Head Design
 - The Transverse head is heated and cooled efficiently due to the feedback system and has been designed to reduce analytical problems normally associated with this type of technique.
 - Pyrolytically coated graphite tubes are used as standard and are manufactured to improve performance as well as increase the analytical life.
 - Platform Tubes are supplied as standard and will accept volumes up to 20 μ l.
- Heating Program
 - Up to 10 heat stages are available. These can be set up and stored in the AA-Win software.
- The graphite furnace tube is cooled efficiently by an optional water circulation system / chiller.
- Safety Features
 - Argon Gas Pressure Sensor
 - Water Flow Sensor
 - Over Temperature Sensor

FULLY ADJUSTABLE INERT NEBULISER



It is fully adjustable so that a wide variety of sample matrices - aqueous or organics (oils etc.), acid or alkali dilute or concentrated solutions can be analysed under optimum conditions.

- Fully inert nebuliser
- Adjustable from 2-6 ml/min
- Excellent RSD's typically <1.0%
- Enhanced sensitivity

FLOW INJECTION HYDRIDE GENERATOR



Excellent Features

1. Unique pneumatic automated technology such as auto-sampling system, automatic fluid measurement system, flow stabilizer (instead of the peristaltic pump), program-time controller and so on are pneumatic automatic systems which are run by the carrier gas source pressure. Many performances are superior to those of the electric systems.
2. Highly Automatic: After pressing the start key, the whole process (sampling, reacting, calibrating and cleaning) will be finished automatically. Automatically reading is possible when connecting with the main unit (if the main unit has the function)
3. Unique electric quartz absorption tube (atomizer): compact (can be used in the Zeeman AAS), speedy temperature rising, easy installation, and stable temperature. The lifetime of this tube is 10 times longer than the flame tube. As long as the temperature lowers down, the analysis method can be changed.
4. Superior performance (sensitivity, detection limit, stability, efficiency): the sensitivity of most elements is better than 1ng/ml/1%A. For example, the sensitivity of Arsenic is better than 0.15ng/ml/1%A. Relative standard deviation (RSD) is lower than 3%. The single measurement will take 25 to 35 seconds.
5. High adaptive: the hydride generator can be used on all the old models of AAS
6. Good reliability: low failure rate, seldom consumables.
7. Small footprint: width*depth*height = 20.5(cm)*15(cm)*12.5(cm); weight = 1.5 kg.
8. Multiple readings: peak height reading (recommended), peak area reading, continuous reading are possible
9. Less solution: sample 2-2.5 mL (including clean). potassium borohydride 1-1.5 mL, carrier liquid 5-6 mL

AA8000 SPECIFICATIONS

FLAME SYSTEM

Instrument can be configured with Flame, Graphite or Integrated Flame & Graphite (interchanged using Software)	
Wavelength Range	185nm – 915nm
Optics	Double Beam, Sealed & Vibration free optical System with a reflective optical compartment
Detector	PMT
Monochromator	Czerny-turner type with Holographic Grating of 1800 lines/mm and Reciprocal Linear Dispersion better than 1.6 nm/mm, focal length 300mm.
Spectral Bandwidth	0.1nm, 0.2nm, 0.4nm, 1.0nm, 2.0nm, (software selectable)
Wavelength Accuracy	± 0.15nm
Wavelength Reproducibility	< 0.05nm
Resolution	0.2nm ± 0.02nm
Baseline Stability	0.005A/30min
Sensitivity (Cu)	>0.9 Absorbance or better for 5 ppm Cu solution
Detection Limit	Cu < 0.004 µg/ml (flame) Cd < 0.4 x 10 ⁻¹² g (graphite furnace)
Repeatability	Cu < 0.7% (Air/Acetylene flame) Ba < 1.0% (Nitrous oxide/Acetylene flame) Cu < 2.0% Cd < 2.0% (Graphite Furnace)
Background Correction	Deuterium Arc, Self reversal
Characteristic Concentration	Cu < 0.02 µg/ml, Ba < 0.15 mg/ml (N ₂ O/Acetylene) Burner Heads
Nebuliser	High Efficiency Nebuliser
Burner Head	Titanium Alloy
Atomization Chamber	Corrosion-resistant material
Position Adjustment	Automatic changeover (AA8000GF) Manual (AA8000F) Automatic Setting of Optimum Height for Flame Burner.
Safety Functions	Burner Identification, Flame Sensor, Gas leak Sensor, Low Gas Pressure Sensor, Drain Trap Sensor, Power Loss Protection, Circulation Water (graphite), Over Temperature Sensor (graphite)

GRAPHITE SYSTEM

Graphite Tubes are pyrolytically coated & transversely heated upto 2700°C	
Platform tubes supplied as standard, capable of accepting volumes upto 20 µL	
Programmable graphite furnace upto 10 stages which can be set & stored using Software	
Replacement of Graphite tube performed by a simple command using Software	
Graphite tube cooling by additional water circulatory system	
Cd Sensitivity: 4x10 ⁻¹² gm	
Safety Features	1. Argon Gas pressure sensor
	2. Water Flow sensor
	3. Over Temperature sensor
	4. Broken Graphite Tube protection

AA8000 SPECIFICATIONS

AUTOSAMPLER

The AA8000 Autosampler with Autodilution facility can be used with both Flame & Graphite Instrument Configurations

Flame System

Vial Capacity	38 positions
Sample Vial Size	6 ml
Standard Sample Vial Size	12 ml
Reproducibility	Cu < 0.6% (air/acetylene) Cu < 1.0% (air/LPG) Ba < 1.0% (nitrous oxide/acetylene)

Pressure Protection for Wash

Position Adjustment using Software

Graphite System

Vial Capacity	76 positions
Sample Vial Size	1.5 ml
Modifier Vial Size	12 ml
Upto 3 Modifier	Additions
Reproducibility	Cu < 2.0 %, Cd < 2.0 %

Pressure Protection for Wash

Position Adjustment using Software



Striving to become the best individuals, we endeavour to foster the best team. Performing sensibly, we try to achieve the best efficiency. Working innovatively, we seek to make the best products. Listening patiently, we excel to offer the best service. So, no matter what your needs are, **come to us, GET THE BEST**

LABINDIA reserves the right to change specifications without notice as part of its continuous programme of product development.