



GBC Scientific Equipment

Pre-Owned Avanta Sigma Double Beam Atomic Absorption Spectrophotometer with Super Lamp Power Supply, Automatic Burner Rotation and Automatic Burner Adjuster. Includes Windows™ computer system, instrument software and all shipping charges. (US & Canada only)

\$14,000.00

Features Include:

- **High performance optics**

Double beam with background correction and flame emission capability. Asymmetric modulation with 2:1 sample-to-reference ratio for noise reduction. All-reflective system with quartz overcoating on mirrors. Sealed against dust and vapor.

- **Monochromator**

Ebert-Fastie design with 333 mm focal length, 1800 line/mm grating and 185-900 nm wavelength range. Automatic wavelength selection and peaking. Continuously adjustable slits with 0.2 to 2 nm spectral bandwidth. Reduced height for furnace work available with all slit widths. Automatic setting of slit width and height. Automatic wavelength scanning. Selected wide range multi-alkali photomultiplier tube.

- **Automated Eight-Lamp Turret**

Automatic lamp selection and individual lamp peaking. Automatic optimization in two planes for maximum light throughput. Automatic multi-element operation, with the next lamp in the sequence automatically warmed up. Compatible with standard hollow cathode lamps and Super Lamps.

- **Super Lamp Power Supply**

For enhanced sensitivity. Super Lamps are high intensity hollow cathode lamps. Elements such as As, Se, Cd, Ni and Pb in particular have improvements in detection limit, sensitivity and linearity.

- **Automatic Burner Rotation**

Automatic Burner Rotation (ABR) allows a predetermined burner angle to be stored with each method. Over-range samples can be analyzed at multiple burner angles automatically, eliminating the need for additional sample preparation (dilution), extended working range.

- **Automatic Burner Adjuster**

Automatic Burner Adjuster provides motorized adjustment in both the vertical and horizontal directions. The burner (or accessory) can be accurately and reproducibly positioned in the light path for optimum performance. The position is stored with each method so that with multi-element flame analysis the optimum sensitivity and precision is obtained for each element.

- **Programmable flame control**

Automatic setting of flame type and gas flows from stored conditions. Programmed ignition and shutdown sequences. Automatic change of flame conditions during automatic multi-element operation. May be programmed to automatically extinguish the flame at the end of an analysis. Interlocks monitor air, acetylene and nitrous oxide pressure, burner presence, burner type, liquid trap level, presence of nebulizer and pressure relief bung, oxidant flow, flame condition and mains power. Ignition is prevented or flame is shutdown if a fault is detected. Screen display of interlock status.



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- **Flame Atomization System**
Pre-mix design with solid inert polymer mixing chamber. All-titanium burner construction. Optional nitrous-oxide/acetylene burner is available. Nebulizer has platinum-iridium capillary and tantalum venturi for resistance to acid attack. Adjustable sample uptake rate with locking mechanism. Inert impact bead. Interlocked nebulizer bung and pressure relief bung. Integral liquid trap with liquid level interlock. Quick-change mounting to enable easy changeover to graphite furnace. Manual vertical and horizontal adjustment of the burner and graphite furnace workhead.
- **ULTRA-PULSE Background Correction**
ULTRA-PULSE background corrector takes 200 (50 Hz) or 240 (60 Hz) corrected sample readings per second for correction of fast background peaks. With approximately 1 ms between pulses and interpolation between measurements, best possible accuracy is assured. High intensity, long life deuterium arc lamp provides 185-425 nm correction range. Corrects to 2.5 total absorbance.
- **Performance Guarantee**
Greater than 0.7 abs for 5 mg/L copper solution with an RSD of less than 0.5%.

Software

- **Data Processing**
Provides analysis by atomic absorption or emission. Absorbance range to 3.0 Abs. Measurement by integration, running mean, peak height or peak area. Mean and RSD of up to 50 replicate readings. Calibration using up to 10 standards. Linear least squares curve correction, linear least squares through zero curve correction, exact fit curve correction, concentration least squares (polynomial) curve correction, standard additions or bracketing standards. Programmable re-slope using a single standard or complete recalibration, rate settable by either time or frequency of samples. Password protected result editing to remove unwanted readings on either samples or standards. Weight and dilution correction. All editing available either during the run or post run.
- **Graphics**
High resolution color display of atomic absorbance, background signals, furnace temperature programs, calibration curves, peaking meters and wavelength scans. Graphics can be displayed in a number of different modes including overlaying non-successive peaks. Selectable absorbance scale for traces. Graphics cursor can be used to obtain numerical information from graphics traces. Zoom function allows graphics traces to be expanded.
- **Data Storage**
Storage is provided for all data including the linking of the graphics trace to the results. Also stored are the methods, sample labels, sample sequences, method sequences, weights and dilutions, report headers and footers, calibrations and the results.
- **Report Generation**
Reports may be printed from all stored results in either single element or multi-element format with results being combined from different runs and different measurement techniques. All operating parameters, calibration graphs, headings, footers, method notes, sample labels, result statistics and weight and dilution factors may be printed. Software supports a full range of printers.
- **Quality Control Protocols**
Complete range of quality control functions available, including check samples, spike recovery, upper and lower QC limits, and calibration correctness. Checks can be carried at predetermined intervals based on time or number of samples analyzed. Alternately, checks can be carried out randomly. All checks have operator settable failure limits and failure actions, and flagging for all failed tests.

Includes 90-day warranty

Please Note:

Many other options are available for use with this GBC system, including:

- Installation & Training
- Standard hollow cathode lamps
- Super Lamps
- Nitrous-Oxide/Acetylene Burner with Flame Shield
- Atom trap (improves flame sensitivity)
- Flame Autosampler
- Graphite Furnace System with Autosampler
- Hydride Generator
- Mercury Concentrator



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