

Atomic Absorption Spectrophotometers

Designed to Transform Your Laboratory

Flame/Graphite Furnace Atomic Absorption Spectrophotometer

Catalog No. 1119-1102, 1119-1202, 1119-1302



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Innovated rich oxygen air-acetylene flame analysis technique (1119-1102)

The patented flame analysis technique adopting rich oxygen air-acetylene flame as the substitution for nitrous oxide-acetylene flame for high temperature element analyses, such as Ca, Al, Ba, W, Mo, Ti, V, etc. Flame temperature is continuously adjustable between 2300-2950°C which makes it possible to choose the best atomization temperature for different elements. It features easy operation, low analysis cost and wide flame AAS analytical range. Rich oxygen flame will not pollute the environment and is not harmful to human bodies. It's a break-through in flame AAS analysis.

Integrated flame/graphite furnace atomization system, changeable with flame emission burner

Automatically controlled changeover of the integrated flame and graphite furnace atomizer featuring easy operation and time saving eliminates human labor.

A flame emission burner head can be installed to perform flame emission analysis to Alkali metals as K, Na etc.(1119-1102/1202)

Accurate fully automated control system

Automatic multi-lamp turret, automatic adjustment of lamp current and optimization of light beam position

Automatic wavelength scanning and peak picking

Automatic spectral bandwidth changing

Automatic changeover between flame and graphite furnace operation, automatic optimization of position parameters and automatic ignition

Reliable fully automatic graphite furnace analysis

Adopting FUZZY-PID and dual curve mode light-controlled temperature control technique, temperature auto-correction technique, ensures fast heating, good temperature reproducibility and high analytical sensitivity. The temperature control accuracy is less than 1%

Graphite furnace with pneumatic control and pressure lock ensures constant pressure and reliable contact

Perfect safety protection measures

Alarm and automatic protection to fuel gas leakage, abnormal flow, insufficient air pressure and abnormal flame extinction in flame system

Alarm and protection function to insufficient carrier gas and protective gas pressure, insufficient cooling water supply and over-heating in graphite furnace system

Advance and reliable electronic design

Adopting large-scale programmable logic array and Inter I2C bus technology

European type sockets and AMP adapters with high reliability to ensure long term reliability of the whole electronic system

Easy and practical analysis software

Easy-to-use AAS analysis software is made under Windows operating system, realizing fast parameter setting and optimization

Automatic sample dilution, automatic curve fitting, automatic sensitivity correction



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Technical Specifications :

Main Specifications	Wavelength range	190-900nm
	Wavelength accuracy	Better than $\pm 0.25\text{nm}$
	Resolution	Two spectral lines of Mn at 279.5nm and 279.8nm can be separated with the spectral bandwidth of 0.2nm and valley-peak energy ratio less than 30%.
	Baseline stability	$\leq 0.004A/30\text{min}$
	Background correction	The D2 lamp background correction capability at 1A is better than 30 times The S-H background correction capability at 1.8A is better than 30 times. (only for 1119-1102/1202)
Hollow Cathode Lamps	Lamp turret	6-lamp turret (1119-1102/1202), 4-lamp turret (1119-1302); Auto-alignment, fully automated scan and peak-picking.
	Lamp current adjustment	400Hz square wave pulse Wide pulse current: 0~25mA, Narrow pulse current: 0~10mA
	Lamp power supply mode	400Hz square wave pulse; 100Hz narrow square wave pulse+400Hz wide square wave pulse (1119-1102/1202)
Optical System	Monochromator	Single beam, Czerny-Turner design grating monochromator
	Grating	1800 l/mm
	Focal length	277mm
	Blazed Wavelength	250nm
	Spectral Bandwidth	0.1nm, 0.2nm, 0.4nm, 1.2nm, automatic change
Flame Atomizer	Burner	10cm single slot all-titanium burner
	Spray chamber	Corrosion resistant all-plastic spray chamber
	Nebulizer	High efficiency glass nebulizer with metal sleeve, sucking up rate:6-7ml/min
	Emission burner	provided with 1119-1102/1202
Graphite Furnace	Temperature range	Room temperature~3000°C
	Heating rate	2000°C/s
	Graphite tube dimensions	28mm(L)×8mm(OD)
	Characteristic mass	Cd $\leq 0.5 \times 10^{-12}\text{g}$, Cu $\leq 5 \times 10^{-12}\text{g}$, Mo $\leq 1 \times 10^{-11}\text{g}$
	Precision	Cd $\leq 3\%$, Cu $\leq 3\%$, Mo $\leq 4\%$
Detection and Data Processing System	Detector	R928 Photomultiplier with high sensitivity and wide spectral range.
	Software	Windows operating system
	Analytical method	Working curve auto-fitting; standard addition method; automatic sensitivity correction, automatic calculation of concentration and content.
	Repeat times	Maximum 20 times of repeat measurement, automatic calculation of mean value, standard deviation and relative standard deviation.
	Multi-task Functions	Sequential measurement for multi-element determination in one sample
	Condition reading	With model function
	Result printing	Measurement data and final analytical report printout, editing with Excel
	Standard RS-232 serial port communication	
Characteristic Concentration and Detection Limit	Normal Air-C2H2 flame	Cu: Characteristic concentration $\leq 0.025\text{mg/L}$, Detection limit $\leq 0.006\text{mg/L}$;
	Oxygen-rich Air-C2H2 flame	Ba: Characteristic concentration $\leq 0.22\text{mg/L}$ Al: Characteristic concentration $\leq 0.4\text{mg/L}$
Function Expansion	Hydride vapor generator can be connected for hydride analysis	
Dimensions and weight	1020 (L)×490 (W) ×540 (H) mm, Main unit, unpacked 80kg 420 (L)×420 (W) ×460 (H) mm, Graphite furnace, unpacked 50kg	