

Spectro Photo Meter - Atomic Absorption WFX – 210



Features:

- Innovated rich oxygen air-acetylene flame analysis technique
- Integrated flame/graphite furnace atomization system, changeable with flame emission burner
- Accurate fully automated control system
- Reliable fully automatic graphite furnace analysis
- Perfect safety protection measures
- Advanced and reliable electronic design
- Easy and practical analysis software

Comparison

Characteristic Mass of Some Elements using rich oxygen air-C₂H₂ flame and other flame methods

Element	Wavelength (nm)	Rich oxygen air-C ₂ H ₂ flame	N ₂ O – C ₂ H ₂ flame	Air – C ₂ H ₂ flame
Ca	422.7	0.009	0.05	0.07
Yb	378.8	0.037	0.08	7.6
Eu	459.4	0.137	0.3	3.0
Al	309.3	0.4	0.7	
Sr	460.7	0.016	0.1	0.15
Ba	553.5	0.1	0.4	10.0
Mo	313.3	0.15	0.4	0.8
W	255.1	3.2	5.0	
Ga	287.4	0.4	1.0	1.3
Sm	429.7	2.92	8.5	
La	550.1	37.2	35.0	
Sn	224.6	0.8	3.0	50

Specifications

Main Specification:

- Wavelength Range : 190 – 900nm
- Wavelength Accuracy: Better than ± 0.25 nm
- Resolution : Two spectral lines of Mn at 279.5nm and 279.8nm can be separated with the spectral bandwidth of 0.2 nm and valley peak energy ratio less than 30%
- Baseline stability: 0.004A/30min
- 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.

Light Source System

- Lamp Turret: Motorized 6 – lamp turret (Two high performance HCLs can be mounted on the turret to increase the sensitivity in flame analysis)
- Lamp current adjustment: Wide pulse current 0-25mA, Narrow pulse current 0 -10 mA
- Lamp power supply mode: 400Hz square wave pulse; 100Hz narrow square wave pulse + 400Hz wide square wave pulse.

SPECTRO PHOTOMETER

Optical System

- Monochromator: Single beam, Czerny – Turner design grating monochromator
- Grating: 1800 l/mm
- Focal length: 277 mm
- Blazed wavelength: 250nm
- Spectral bandwidth: 0.1nm, 0.2nm, 0.4nm , 1.2nm, auto switch over

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

Graphite Furnace

- Temperature range: Room temperature – 3000°C
- Heating rate: 2000°C/s
- Graphite tube dimensions: 28mm (L) x8 mm (OD)
- Characteristic mass: Cd $\leq 0.8 \times 10^{-12}$ g ,Cu $\leq 5 \times 10^{-12}$ g Mo $\leq 1 \times 10^{-11}$ g
- Precision: Cd $\leq 3\%$, Cu $\leq 3\%$, Mo $\leq 4\%$

Detection and Data Procession System

- Detector: R928 photomultiplier with high sensitivity and wide spectral range
- Software: Under Windows operating system
- Analytical method: Working curve auto-fitting; standard addition method; automatic sensitivity correction; automatic calculation of concentration and content.
- Repeat times: 1-99 times , automatic calculation of mean value, standard deviation and relative standard deviation.
- Multi-task Function: Sequential determination of multi-elements in the same sample.
- Condition reading: With model function
- Result printing: Measurement data and final analytical report printout, editing with Excel.
- Standard RS – 232 serial port communication

Graphite Furnace Auto sampler

- Sample tray capacity: 55 sample vessels and 5 reagent vessels
- Vessel material: Polypropylene
- Vessel Volume: 3ml for sample vessel, 20ml for reagent vessel
- Minimum sampling volume: 1 μ l
- Repeatable sampling times: 1 – 99 times
- Sampling system: Accurate dual pump system, with 100 μ l and 1ml injectors.

Characteristic concentration and Detection Limit :

- **Air – C₂H₂ flame**
- Rich oxygen Air-C₂H₂ flame:
 - Cu : Characteristic concentration ≤ 0.025 mg/L, Detection Limit ≤ 0.006 mg/L,
 - Ba : Characteristic concentration ≤ 0.22 mg/L,
 - Al: Characteristic concentration ≤ 0.4 mg/L

Function Expansion

- Hydride vapour generator can be connected for hydride analysis.

Dimensions and Weight

- Main unit: 107x49x58 cm, 140kg
- Graphite furnace: 42x42x46cm, 65kg
- Auto sampler: 40x29x29 cm, 15 kg

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