Graphite Furnace Atomic Absorption Spectrometer | AS2200

Features

- Graphite furnace visualization technology;
- Advanced and reliable safety protection system to protect operators in all aspects
- Advanced optical path design;
- High-performance automatic sampler: supports 85-bit automatic sampling and online dilution, greatly reducing analysis operations and improving analysis efficiency
- Rapid analysis of multiple elements;

Application

- Minerals：rare earth analysis and precious metals analysis
- Environmental：Environmental Protection & Water quality testing
- Material science：alloy materials & building materials
- Scientific research: Elemental quantitative analysis in scientific research such as medical and health, and higher education institutions

Description

The graphite furnace atomic absorption spectrophotometer AS2200 is a brand new product carefully built by Optosky.

The multimedia graphite furnace visualization system can visually monitor the dynamic evolution of the sample liquid during the drying, ashing, and burning processes inside the graphite tube, and conveniently observe the optimal position and depth of the capillary needle of the autosampler entering the graphite tube, and The position of the platform inserted into the graphite tube ensures the accuracy of analysis and the life of the graphite tube.

Adopting advanced optical path design, the integrated suspended shock-absorbing optical platform improves shock resistance, avoids the impact of temperature changes on the optical system, and the optical signal is relatively stable; it can support 85-bit automatic sampling and online dilution, greatly reducing analysis operations and improving analysis efficiency. .

In addition, a six-lamp automatic turret system is used to provide rapid analysis of multiple elements. It also has an advanced and reliable safety protection system to protect the safety of operators in an all-round way. It has excellent performance, easy operation, accurate indicators and stable performance. It can meet many common needs and is deeply loved by the majority of users.

It is widely used in quantitative analysis of elements in rare earth analysis, precious metal analysis, environmental protection, water quality testing, alloy materials, building materials, medical and health, universities and other scientific fields.

1. Parameter

Table 1: Performance Parameters of Graphite Furnace Atomic Absorption Spectrometer AS2200

Model	AS2200	AS2200-ALS
Wavelength Range	190～900nm	
Grating Line Density	1800 lines /mm	
Absorbance Range	-0.1~2.5ABS	
Wavelength Repeatability	≤0.05nm	
Wavelength Accuracy	Full spectrum ±0.15 nm	
Optical System	Integrated optical platform, fully enclosed optical system (single beam)	
Detector	Photomultiplier tube	
Resolution	Able to separate manganese doublet lines (279.5 and 279.8 nm) with a spectral bandwidth of 0.2 nm and a valley-to-peak energy ratio of <30%	
Spectral Slits	0.1nm,0.2nm,0.4nm,0.7nm,1.0nm.2.0nm（automatically switchable）	
Background Correction Technology	D2 background subtraction (background signal 1 ABS, background reduction capability ≥50 times)	
Static Baseline Drift	≤0.002ABS/30min（ Cu）	
Lamp Holder	Standard 6-lamp turret, optional 8-lamp turret	
Characteristic Concentration	$Cu≤10× 10^{-12}g$ ， $Cd ≤0.4× 10^{-12}g$,	
Measurement Repeatability	Cu≤2% ， Cd ≤2%	
Detection Limit	Cd ≤0.3pg	
Gas Flow Control	Needle valve control	

Safety Protection	Automatic gas cut-off for low pressure, power interruption, abnormal flameout, and burner mismatch; automatic temperature shutdown for overheating	
Background Subtraction Method	Self-absorption background subtraction, deuterium lamp background subtraction	
Maximum Heating Rate	≥3000℃/s	
Graphite Furnace Operating Temperature	Room temperature~3000℃	
Temperature Control Accuracy	≤1%	
Power	6000W peak instantaneous power	
Dimensions	700*550*440(mm)	
Weight	80kg	
Autosampler	Not included	85-position autosampler

2. Product Features

(1) Gas control system (standard configuration)

The two gases inside and outside the tube are controlled separately. During the analysis process, the outside of the tube is kept ventilated, and the gas in the tube is stopped during the atomization stage. This effectively protects the graphite tube, maximizes its life, and achieves high analytical sensitivity.

(2) Visualization system (standard configuration)

Figure 1 Visualization system

The multimedia graphite furnace visualization system can intuitively monitor the dynamic changes of the sample liquid during the drying, ashing and burning processes inside the graphite tube, and conveniently observe the optimal position and depth of the capillary needle of the autosampler entering the graphite tube and the insertion of the platform The position in the graphite tube ensures the accuracy

of analysis and the life of the graphite tube.

(3) Graphite furnace controller (standard configuration)

Figure 2 Graphite furnace controller

- The graphite furnace atomization device is an electrothermal atomizer that can increase the sensitivity of most measured metal elements from mg/L level to μg/L level;
- The advanced light-controlled heating system realizes automatic full-power heating during the atomization stage;
- Heating condition settings: drying, ashing, atomization and two heating methods;
- Heating and temperature control method: the drying and ashing stage is a voltage feedback control method, and the atomization stage is a voltage or light feedback control method;
- Typical element characteristic concentrations: Cd≤0.4×10-12g; Cu≤10×10-12g.
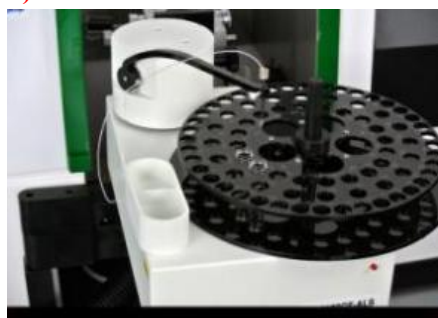
(4) Automatic sampler (optional)

Figure 3 85-bit autosampler

- Automatic curve function: There is no need to manually configure the calibration curve. A reserve standard solution can automatically configure and measure the calibration curve.
- Intelligent residue removal function: The intelligent residue removal function can automatically determine whether residues are left and remove them without manual judgment and operation to eliminate cross-contamination.
- Intelligent dilution function: Fully automatic intelligent dilution, the instrument automatically gives the dilution ratio according to the sample concentration, matches the best test area and automatically completes dilution and measurement. The entire process does not require any manual intervention.
- In-tube visual system: can monitor the injection process and drying process. During the drying process, every detail can be seen clearly, and the ashing temperature can be determined quickly and accurately.
- Quality control: Intelligent and complete analytical quality control technology can regularly calibrate blanks and quality control samples, monitor the precision of results, and automatically retest to ensure the quality of each analysis data.

Product data information is current as of publication data. Products conform to specifications per the terms of Optosky Standard warranty.

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(5) Hydride generator (optional)

Figure 4 Hydride generator

- Necessary analytical equipment for environmental monitoring, food hygiene, quality inspection, commodity inspection and drinking water monitoring;
- High degree of automation: With only one start button, the entire process of sample injection, generation, measurement and cleaning can be completed with one click;
- Unique electric heating quartz absorption tube: small device, fast heating, easy installation, stable temperature, and service life more than 10 times longer than flame heating;
- No fuel consumption is required, and the analysis method can be quickly changed as long as the temperature drops;
- Using advanced flow injection technology, the sample reaction is more uniform, which improves the stability of the equipment, and the relative standard deviation RSD is <2%;
- Measurement rate: 100 times/hour, single sampling volume is less than 2ml.