



adhyascientific

SSA-100 SERIES

ATOMIC ABSORPTION
SPECTROPHOTOMETER



NILAI TKDN
43,73%

SSA-100 SERIES

ATOMIC ABSORPTION SPECTROPHOTOMETER

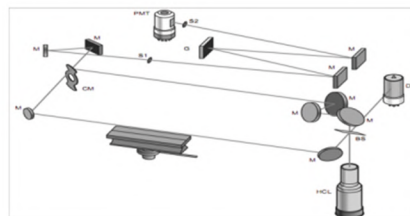
SSA-100 Series products are the fifth generation of atomic absorption spectrophotometers developed by Adhyascientific. With the continuous improvement of technology, the degree of automation and the stability of the product during the measurement of samples have reached a new level, and its excellent flexible configuration and rich scalability, and equipped with a powerful software system, safer and more reliable, to meet the testing needs of various industries.





Optical Dual-Beam System

- Flame mode defaults to optical dual-beam
- Graphite furnace method automatically selects electronic dual-beam
- Integral aluminum casting optical platform design, providing enhanced resistance to interference.



8-Lamp Holder Design

- One-click operation in the software allows automatic switching between lamp positions, 8 lamps can be lit simultaneously or pre-work, shorten the pre-work time, improve work efficiency;
- Patented encoded lamp feature allows for automatic recognition of element lamps through barcode scanning, which further raises the level of automation in the instrument.



Parallel Dual Atomization System Design :

- With a single click in the software, the system can quickly and automatically switch between flame atomic absorption, graphite furnace atomic absorption, and hydride generation methods within one second;
- Upon switching modes, the system automatically adjusts to the optimal positioning for graphite furnace and flame modes;
- The flame atomizer and graphite furnace atomizer are configured in parallel, significantly shortening the light path and resulting in minimal loss of optical energy, thus achieving high sensitivity.



Safety Protection System :

- Real-time monitoring of air pressure;
- Real-time monitoring of acetylene pressure (high/low pressure);
- Real-time monitoring of water seal levels (high/low water level);
- Real-time monitoring of flame burning status;
- Monitoring for combustible gas leaks (utilizing dedicated combustible gas sensors);
- Automatic interlocking and flame extinguishing upon detection of abnormalities or power outage;
- Incorporation of an air buffer tube that supplies approximately 5 seconds of auxiliary combustion gas even in the event of sudden power loss, ensuring gas line safety.



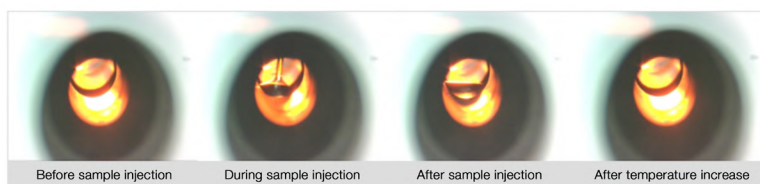
Pneumatic Graphite Furnace :

- Software-controlled one-button operation for opening and closing the graphite furnace body, making graphite tube replacement more convenient;
- Sealed furnace chamber design, enhancing measurement sensitivity



Configuration of in-furnace observation camera :

- More convenient adjustment of the injection needle position and observation of the injection status;
- Real-time monitoring of the temperature ramping process inside the furnace chamber.



SSA-100 GRAPHITE FURNACE AUTOSAMPLER



EASY INSTALLATION

Suspension design allows for quick installation and disassembly within 3 Seconds

COMPACT AND CONVENIENT

Miniaturized exterior design featuring a multi-position sample tray.

POWERFUL FUNCTIONALITY

The syringe utilizes capillary tubing, characterized by low adsorption and residue, with easier positional adjustment.

ONLINE DILUTION

Offers online dilution capabilities, automatic addition of multiple matrix modifiers, enabling the configuration of calibration curves using single-point online dilution.

HVG-A CONTINUOUS FLOW HYDRIDE GENERATOR

When coupled with atomic absorption spectrophotometer, the HVG-A Continuous Flow Hydride Generator allows for the detection of trace amounts of arsenic, mercury, bismuth, antimony, germanium, selenium, lead, and other elements, with low detection limits, excellent sensitivity, and stability;

Adjustable flow rates in 10 stages ensure saving of sample solutions;

Peristaltic pump continuous sampling (compared to pulse mode), Ensures signal stability while maximally reducing memory effects;

Compact, electrically heated quartz absorber tubes for simple assembly and temperature stability;



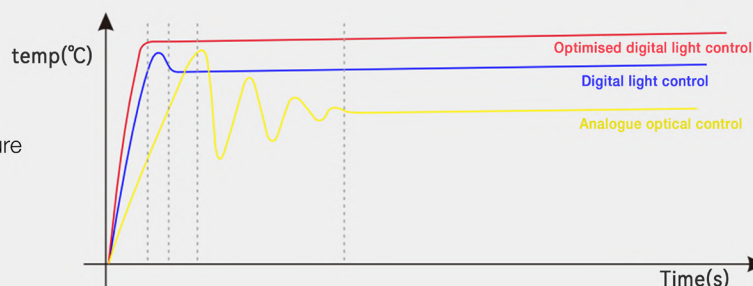
Stand-alone external design, strong adaptability, and can be used with many atomic absorption spectrophotometers

BETTER STABILITY IN GRAPHITE FURNACE MEASUREMENTS

- ▶ Graphite furnace digital light control heating programme, real-time temperature correction function;
- ▶ Temperature correction is used in the low temperature stage to ensure that the samples do not boil in the low temperature stage, and the optimised digital optical temperature control is used in the high temperature stage to ensure better temperature stability;
- ▶ Built-in one-touch temperature calibration: eliminates differences between graphite tubes;
According to the graphite furnace heating principle, based on the integral algorithm to establish a mathematical model, accurate control of graphite furnace temperature;

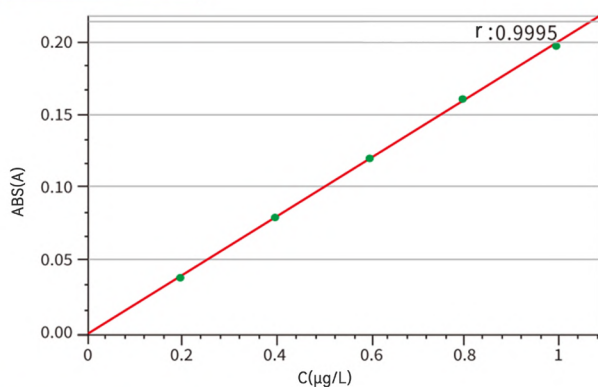
PATENT FOR INVENTION:

A method for calculating the temperature of a heating furnace based on the measurement of the current method
Patent No.: CN202111181351.3

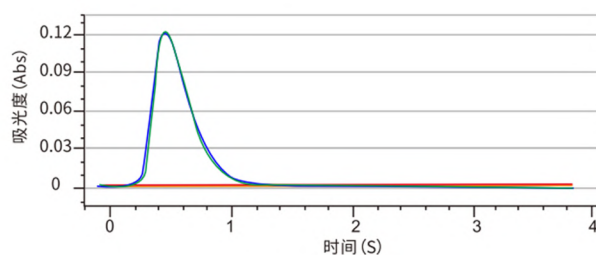


STABILITY OF LOW-TEMPERATURE ELEMENTS DETERMINED BY GRAPHITE FURNACE

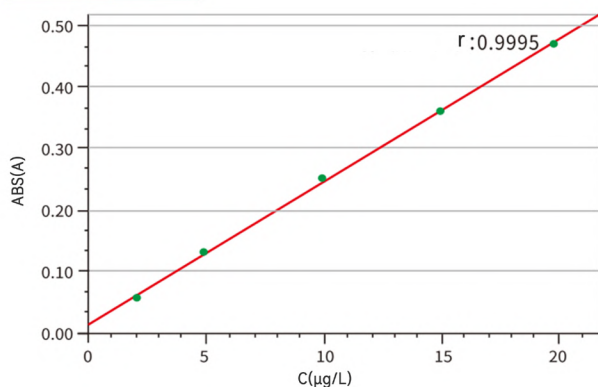
Cadmium (Cd)



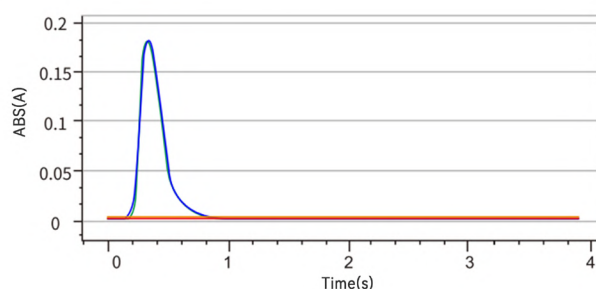
C(μg/L):0.6μg/L RSD:0.44%



lead (Pb)

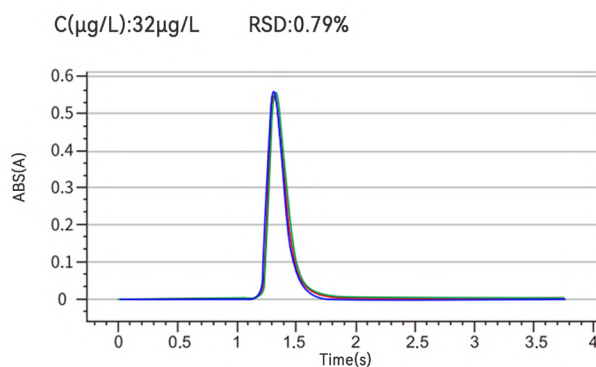
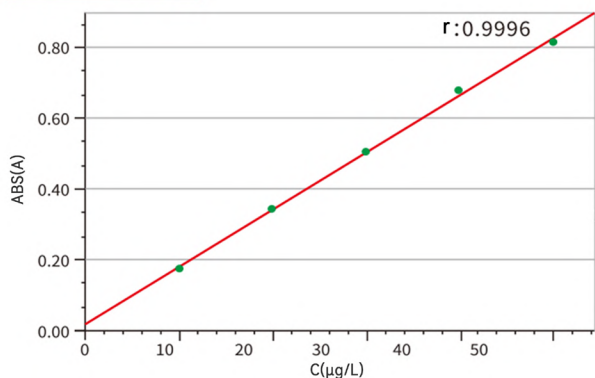


C(μg/L):7.5μg/L RSD:0.81%

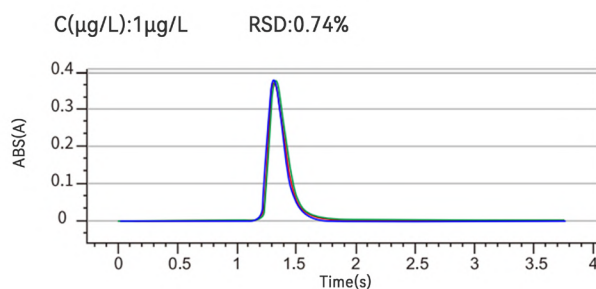
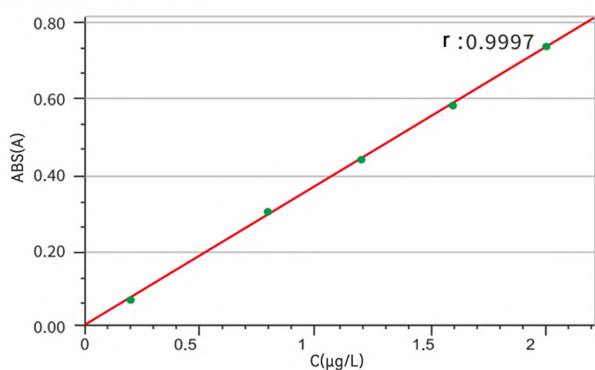


STABILITY OF HIGH-TEMPERATURE ELEMENTS DETERMINED BY GRAPHITE FURNACE

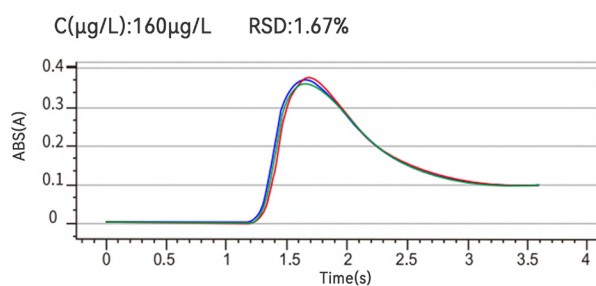
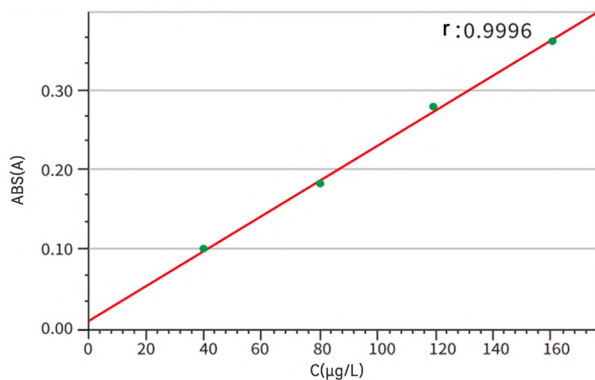
Aluminium (Al)



Beryllium (Be)

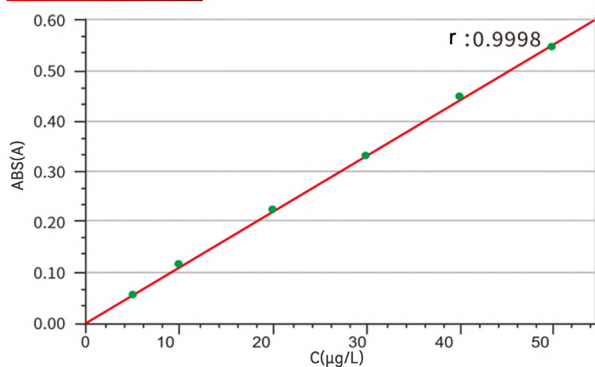


Vanadium (V)



STABILITY OF HIGH-TEMPERATURE ELEMENTS DETERMINED BY GRAPHITE FURNACE

Thallium (Tl)



According to the environmental standard 'Technical Guidelines for the Formulation and Revision of Standard Analytical Methods for Environmental Monitoring' (HJ168-2020), the soil standard samples GSS-5 and GSS-16 were measured, and the limit of detection was 0.0384 mg/kg to meet the standard requirements. The average value of the accuracy measurement results was within the standard value.

Accuracy measurements of thallium in soil (mg/kg)		
Soil standards	GSS-5	GSS-16
Average value	1.5329	1.1282
Standard value range	1.6 ± 0.3	1.12 ± 0.08

POWERFUL AND INTELLIGENT SOFTWARE

PRESET PARAMETER

- ▶ The software comes with default optimal parameters for each element, just select the element to be measured and the type of measurement ;

Step	Temp(°C)	Time(s)	Heating Method	Sensitivity	Gas Type	Gas Flow
1	100	10	RAMP	Low	Argon	0.2
2	130	20	RAMP	Low	Argon	0.2
3	300	15	RAMP	Low	Argon	1.0
4	300	10	RAMP	Low	Argon	1.0
5	300	3	RAMP	High	Argon	0.0
6	600	3	STEP	High	Argon	0.0
7	700	2	STEP	Low	Argon	1.0

- ▶ Multi-module accessory configuration, one-click.

Atomizer

☒ Flame ☒ Graphite Furnace ☒ HVG

Attachment

☒ AutoSampler ☒ Flame Burner Identify ☒ Pneumatic GF

☐ Real-time observation of graphite furnace ☒ MFC

Buttons: Cancel, Sure

AUTOMATIC DILUTION FOR EXCEEDING THE STANDARD

- ▶ Automated dilution of excess samples in conjunction with an autosampler ;
- ▶ Input the injection volume and the highest point concentration value, the software can automatically calculate and prepare the standard curve sequence.

No.	Type	Label	Conc	Abs	Bg Abs	StdSample...	Diluent...
1	StdSample B...	StdSampleB...					
2	StdSample	StdSample1	2.0000			4	16
3	StdSample	StdSample2	5.0000			10	10
4	StdSample	StdSample3	10.0000			20	0

InjectVolume: 20 SampleVolume: 20 ReserveConcentration: 10

INTELLIGENT CODING

- ▶ Sample sequence rules can be recognised, and sample sequence codes can be generated by inputting the code rules with one click.

Rule Suffix: 1-1;1-2;1-3;1-4

Buttons: New, Delete, Cancel, Save

Text: rule suffix, ";" Separator, "-" interval character, the number of lines beyond the rule range, no automatic label; When the first line identifies suffixes that do not conform to the change rules, the first line is used as a prefix for all line identifiers

BASIC SPESIFICATIONS

Wavelength Range	185.0 nm - 910.0 nm
Monochromator	Aberration-corrected Czerny-Turner unit
Spectral Bandwidth	0.1, 0.2, 0.4, 1.0, 2.0 nm (automatic switching)
Detector	Photomultiplier tube
Background Correction	Deuterium lamp
Lamp Base	8 lights on at the same time
Measurement Method	Flame method, graphite furnace method, hydride generation method, flame emission method
Quantitative Methods	Calibration curve method, standard addition method
Repeated Measurement	Up to 99
Measurement Methods	Peak height / peak area
Data Processing	Uses weight factor, dilution factor, constant volume factor, and correction factor to calculate actual sample concentration
QA/QC	QC items include correlation coefficient, RSD%, QC samples, blanks, etc.

FLAME SPESIFICATIONS

Acquisition Method	Optical Dual Beam
Combustion Head	Pure Titanium 10cm Burning Head
Atomizer	High-efficiency glass atomizer / hydrofluoric acid resistant atomizer
Nebulization Chamber	Polypropylene
Position Adjustment	Automatic switching of motor drives
Gas Controller	Mass Flow Controllers
Security Measure	Acetylene leakage alarm; Flame monitoring protection, Acetylene pressure alarm; Air pressure alarm; Air buffer tanks prevent tempering; Waste liquid tank level monitoring to prevent backfires

GRAPHITE FURNACE SPECIFICATIONS

Acquisition Method	Electronic Dual Beam
Heating Temperature Range	Room temperature ~3000°C
Heating Method	RAMP / STEP
Heating Control Method	Drying: current controlled; Graying/Atomization: optical temperature control
Ramp-up Procedure	Up to 20 paragraphs; Internal gas flow: 0~1L/min
Sample Enrichment	Graphite Furnace Heating Enrichment
Security Protection	Gas pressure monitoring; Overcurrent protection; Furnace cooling block temperature detection protection; Cooling water flow monitoring
Chilled Water	Water temperature requirement: 10–30°C; Supply pressure: 0.06–0.2Mpa; Flow rate: 0.5–2L/min
Gas	Argon pressure: 0.35–0.50Mpa
Graphite Tube	Pyrolytic coated graphite tubes / platform graphite tubes / non-pyrolyticcoated graphite tubes
Power Requirements	220V ±10%, 50 ±1Hz
Maximum Power	6000W

AUTO SAMPLE INJECTOR SPECIFICATION

Function	Suspended single graphite furnace automatic sample injector, with an injection needle made of low-adhesion quartz capillary glass
Number of Injection Positions	100 + 8 positions, standard samples, test samples, matrix modifiers, and diluents can be placed at any desired location
Injection Volume	1 - 100 uL
Result Reproducibility	≤ 1.5%

HYDRIDE GENERATOR SPECIFICATION

Function	Independent research and development, measuring elements As, Hg, Pb, Se, Bi, Sb, Te, Used in conjunction with an atomic absorption spectrophotometer to replace the atomic fluorescence photometer Used Quartz gas-water Separator, easy to clean Continuous injection (compared to pulse type) ensures signal stability
Injection Flow rate	Adjustable in 10 levels, saving sample solution
Detection Limit	Hg : 5 ppb, As : 10 ppb



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