

AAS - 2800E

Atomic Absorption Spectrometer



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

Application:

The AAS - 2800E atomic absorption spectrophotometer can be widely used in the fields of metallurgy, petrochemical industry, geology, medical science, environmental protection, scientific research, agriculture, disease control, food, material science, quality inspection etc. The AAS - 2800E can be used to analyze over 70 elements at both normal or trace levels.

Features :

Advanced Optical System :

- The AAS - 2800E features a unique suspension design for the optical system. Shaking of the instrument bench or change of the environmental temperature will have no effect on instrument's stability.
- First domestic manufacturer to use an 1800 lines/mm diffraction grating, which increases resolution and energy efficiency.
- A single beam and short optical system allows for a strong signal and very low detection limits for elements such as As, Se among others.
- Carefully designed deuterium lamp background deduction results in accurate calibration.
- Two lamp positions allow one lamp to be used for analysis while another one is being pre-heated.

Integrated Design :

- The AAS-2800E features an integrated flame and graphite furnace design that contains the optical system, atomizer, graphite furnace power supply and electronics all in one unit. It is first such design and one of the most compact AAS in the world.
- Optimized lamp power supply technology to prolong lifetime of element lamps.

Automated Switch between Flame and Graphite Furnace :

- Features automated or manual switching between flame and graphite furnace in less than 2 seconds.
- Optics do not need to be adjusted between switches.

Reliable Safety System

- Safe and reliable control alarm devices to ensure over-current protection for hollow cathode lamps.
- Under-pressure protection of combustion gas/protection gas, leakage alarm of combustion gas, over-heating protection of graphite furnace and protection against abnormal flame.

Flexibility :

- Optional hydride generator that utilizes a heated ceramic tube to realize trace analysis of As, Pb, Se, Hg, Bi, Sb, Sn, Te with high sensitivity.
- Optional Nitrous Oxide/Acetylene selection system allows for analysis of more than 30 high atomization temperature elements.

Excellent Graphite Furnace :

• Advanced Longitudinal Heating Mode:

Atomization temperature can reach 3000°C. This meets the atomization temperature demands of Ni, Mo, V, Co, etc.

• High Stability

Advanced optics system ensures high optical energy of the instrument. High signal-noise ratio ensures repeatable data.

• Maximum Sample Size Increased

Maximum sample size is 70μL. This feature is useful for multiple samples and analysis of samples with low concentrations.

• High Performance Background Correction

Continuous light source (D2) is capable of 1 A of background correction.

• Fast Heating

Heating rate is $\geq 2000^{\circ}\text{C}$, which allows for rapid atomization.

• High Precision Homogeneous Heating

Unique design of the graphite furnace ensures homogeneous heating during atomization to obtain accurate data.

• Titanium Nebulizer and Burner

Utilizing aerospace technology, the industrial grade pure titanium nebulizer and burner head is cast using the paraffin method.

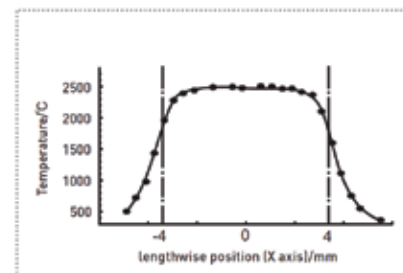
These parts have excellent resistance to corrosion and oxidation can withstand high temperatures, and are extremely durable.

• Convenient Injection Port

Design of the injection port simplifies sample injection and decreases error. Good precision can be obtained even by manual injection.

• Advanced Graphite Furnace

Graphite cone can be replaced when worn to ensure stable conductivity of electrodes.



Iso-temperature Line During Atomization



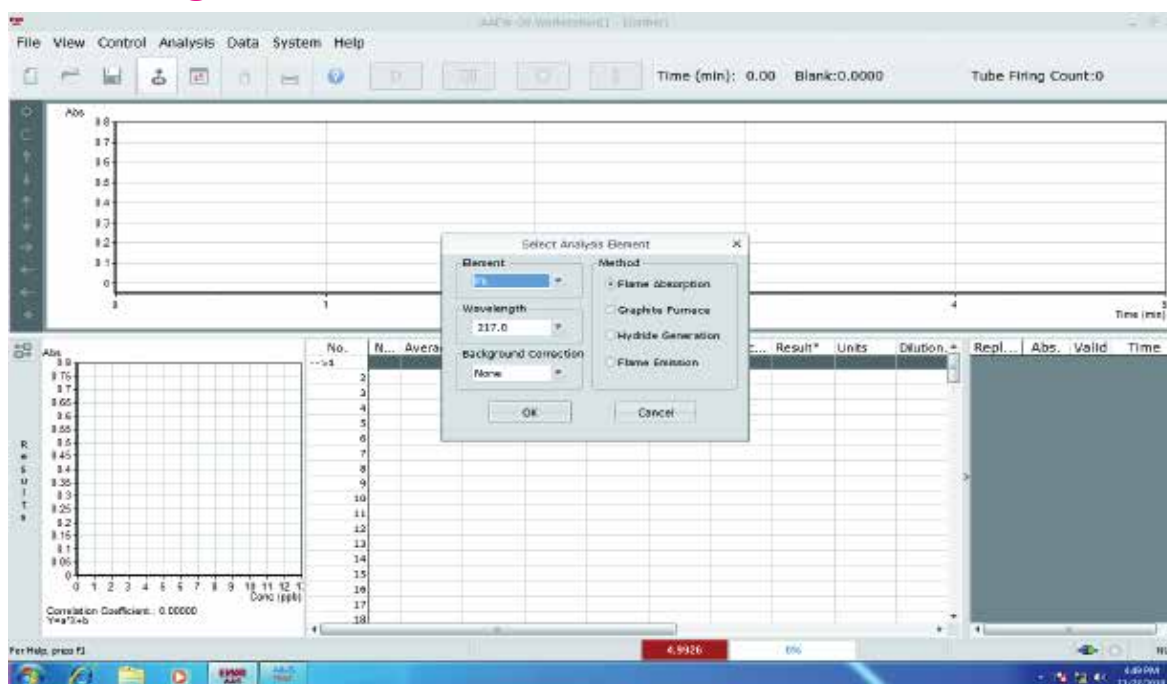
Titanium Nebulizer



Titanium Nebulizer



Data Processing Workstation:



User Friendly Interface :

Run on the Windows XP operating system in many languages including English among others.

Strong Analysis Capabilities, Fault-tolerant Processing, and Flexible Modification of Curve Fitting Equation :

Report Printing :

Customizable report templates are capable of generating reports of any format the user may need.

Powerful Data Management :

The workstation has powerful data management capabilities including backup and subsequent treatment of historic data, including search, edit, sort etc. Data files can be exported into many different formats.

QA/QC Control :

The QA/QC feature allows for automated determination of whether the analysis result or some function of the result exceeds user-defined limits. If the result exceeds the limit, the system automatically runs the analysis again according to setup parameters. Functions of QA/QC include standard deviation (SD) detection, relative standard deviation (RSD) detection, correlation coefficient detection, QC detection, baseline drift (sensitivity correction) detection, sample upper limit detection (automatic online dilution).

The system automatically determines whether the analysis results are appropriate, and the system will remeasure the sample automatically according to the set if the scope is exceeded. About the QA/ QC functions of this system mainly includes: the detections of the standard deviation (SD), relative standard deviation (RSD), correlation coefficient, QC, baseline drift (sensitivity amendment) and the upper limit of samples.

Status Monitoring :

Real-time dynamic monitoring of working conditions. For flame method: type of burner head (air + acetylene or nitrous oxide + acetylene), water level of the liquid trap, status and pressure of the combustion gas and the oxidant gas, flow rate of the combustion gas, acetylene leakage alarm. For graphite furnace method: over-current protection, water temperature, water flow rate, pressure of the protection gas.

Management of Lamp Use Time:

Automatically records the usage time of element lamps.

Graphite tube firing count monitoring

Optional specialized pharmaceutical industry :

software which conforms to GMP certification

Technical Specifications :

Optical System :

- Wavelength range: 190~900 nm
- Spectral bandwidth: Automatic switching between 5
- levels: 0.1, 0.2, 0.4, 1.0, 2.0 nm
- Mono-Chromator: C-T Grating Mono-Chromator
- Wavelength Indication Error : $\pm 0.5\text{nm}$
- Wavelength repeatability: $\leq 0.3\text{ nm}$
- Grating: 1800 lines/mm
- Blaze Wavelength: 250 nm
- Baseline Stability: $\leq 0.004\text{Abs}/30\text{min}$ (Dynamic)
 $\leq 0.002\text{Abs}/30\text{min}$ (Static)
- Resolution: better than 0.1nm

Flame Method :

Benchmark Concentration of Cu: $\leq 0.05 \mu\text{g/ml}$ /1%

Detection Limit: $\leq 0.008 \mu\text{g/ml}$

Precision RSD: $\leq 1.0\%$

Burner: Interchangeable full titanium burner of 50mm and 100 mm

Position Adjustment: Adjustable height and angle. Flame to hydride can be switched in less than 1 minute.

Background Correction :

Background correction is available for both flame and graphite furnace method.

Correction mode: Deuterium lamp

Correction capability: When background absorption approaches 1.0 Abs, the instrument is capable of a background correction of 50 times or more.

Graphite Furnace Method:

Benchmark Concentration of Cd: $1.0 \times 10^{-12} \text{ g}$

Detection Limit: $1.0 \times 10^{-12} \text{ g}$

Temperature Range: Room temperature to 3000°C

Precision RSD: $\leq 3.0\%$

Temperature Control Program: Max 20 step temperature program. 3 modes of temperature rise: step, slope and flat.

Max Power Temperature Rise Rate: $\geq 2000^\circ\text{C/s}$

Heating Modes: Max power heating

Main Unit with Integrated Graphite Furnace Power Supply :

Dimensions: 880 (L) x 540 (W) x 450 (H) mm, 125 kg

Power Supply: $\sim 220 \text{ V}$ 50 Hz single phase, main unit power: 200 W, graphite furnace power: 4 KW

Data Processing :

Measurement methods: Flame absorption, flame emission, graphite furnace, and hydride method.

Analysis method: Linear fitting, nonlinear fitting, standard addition method

Printing output: Calibration curve, spectrum, analysis conditions, analysis parameters, and analysis results can be automatically stored and printed.

The AAS-2800E Series Configuration Table :

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Hydride Generator :

It's uses a peristaltic pump for sample injection, and has an atomizer consisting of a ceramic electric heating tube heating a quartz tube. It allows for ultra low trace analysis of the eight elements (As, Se, Hg, Pb, Bi, Sb, Sn and Te), which have relatively low sensitivity using the atomic absorption method. The instrument is fast and easy to operate. It is compatible with any AAS using the hydride-atomic absorption method.



Auto-Sampler for Graphite Furnace :

It is auto-sampler for graphite furnace is multi-functional with high precision. Using an auto-sampler for graphite furnace analysis will improve analysis accuracy with an RSD of $<1\%$. Automated preparation of solutions at various concentrations and automated addition of chemical modifiers helps analysis work to be more accurate and simple. It also significantly reduces the operator's workload by realizing fully automated graphite furnace analysis.



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- Sampling of tested samples, standard samples and chemical modifiers are all software controlled.
- For the same sample, analysis can be repeated up to 99 times. The volume of sample injection is up to 70 μ L.
- After solution injection, the software will start the graphite furnace heating program automatically.
- The system immediately enters the automatic cleaning procedure after each injection to prevent pollution of samples. After each injection, the system runs an automatic rinse procedure to prevent samples from being contaminated.
- Automatic concentration and dilution.

Auto-Sampler for Flame :

- 123 positions for samples, 6 positions reserved for standard solution, blank solution, etc.
- The injection time and frequency can be set automatically through software.
- Automatic rinse.



Water Cooling System :

Water Cooling System is designed for various industrial applications with a strong protection and alarm system. It has the unique option of a purification configuration that ensures pure water is produced. This system provides a variety of alarms and output connections, along with a water level alarm, over temperature alarm and water flow alarm. All configurations can be customized according to the user's requirements.



Features :

- Large volume open tank, easy to clean, easy to do water bath testing.
- Multiple alarm protection, including water level alarm, water flow alarm and over temperature alarm

- Optional configurations for water purification

The first option: full stainless steel water pipelines;

The second option: built-in filtering devices to ensure water quality.

Air Compressor :

- The EW-320AC is a double cylinder piston compressor that is stable, reliable and oil-less.
- It uses three filters (two filters for gas inlet and one filter for gas outlet) to ensure that the gas output is pure.
- Provides clean and dry compressed air with constant pressure for atomic absorption spectrometers.



Gas Flow	Pressure Range	Dimensions	Features	Note
20L/min	0.005 ~ 0.3 Mpa	400(W)×300 (L)×635 (H)	Quiet oilless dual piston compressors	Manual drain

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

AMC's/CMC :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

Validations :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

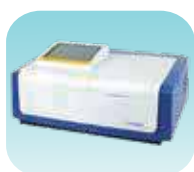
Instruments :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.



About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufacturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

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3007



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2979 Plus



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Chromatograph



Atomic Absorption
Spectrophotometer



Liquid Particle
Counter



Optical Emission
Spectrophotometer



DSC/TGA



Semi Auto Bio
Chemistry Analyzer



HEMA 2062
Hematology
Analyzer



Micro Plate
Reader/Washer



URINOVA 2800
Urine Analyzer



Total Organic
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Fully Automated
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Chemistry Analyzer



PCR/Gradient PCR/
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TOC
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Laser Particle
Size Analyzer



Ion Chromatograph



Water purification
system

Regulatory compliances



Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:



1. Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

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