Aurora
ILLUMINATING SOLUTIONS

TRACE 1800 Atomic Absorption Spectrometer

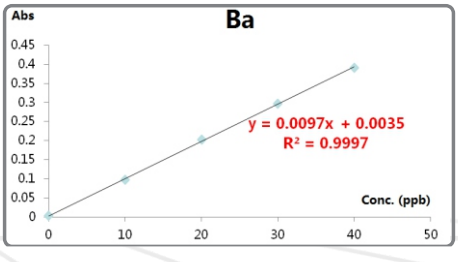
Elemental Analysis

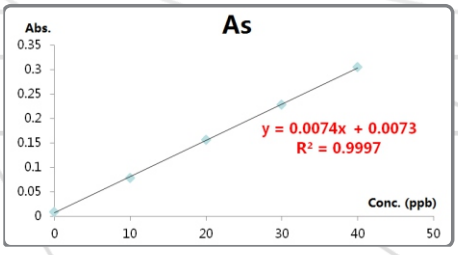
Aurora has built a reputation as a leading manufacturer of atomic absorption spectrometers for elemental analysis research. Building on this success, Aurora is pleased to introduce the newest addition to its line of atomic absorption spectrometers: the TRACE 1800.

The TRACE 1800 can detect more than 70 elements at levels ranging from ppm to ppt. The novel full reflection optic design generates results faster while providing better definition of absorbance peaks for each element. The micro-volume sample injection enables highly efficient analysis of samples from a as little as 50 µL (in flame mode). The modular design of the TRACE 1800 provides flexibility to choose the right configuration for your needs and enables elemental analysis at multiple concentration levels. The TRACE 1800 is the culmination of years of research and development in atomic absorption engineering and design and is ideal for use in any laboratory requiring a high quality precision instrument.

FEATURES AND BENEFITS

- Full reflection optic design ensures the highest image sharpness.
- Two direction 8-lamp turret with auto-switch minimizes time between elemental analyses.
- Six independent lamp power supplies for warming up 6 lamps simultaneously minimizes set-up time.
- Two high intensity power supplies for increased sensitivity when analyzing difficult elements.
- Patented online dilution enables automatic dilution from a single solution to create calibration standards for flame and graphite furnace.
- Wavelength scan from 185 – 900 nm in under 100 seconds provides results faster and enables higher throughput.
- Micro-volume sample injection requires only 50 µL of sample to complete a flame test enabling high precision regardless of sample size.
- Universal XYZ autosampler provides random access to all sample vials.
- Heating rate of up to 3800 K/sec and the transversely heated graphite furnace tube facilitates fast and uniform temperature distribution.
- Durable Teflon nebulizer chamber provides superior resistance to corrosive reagents.
- Self-reverse and industry-leading 1 kHz D2 background correction ensures accuracy of results.
- Integrated graphite furnace video camera system provides a convenient way to monitor sample injection and drying.
- Switchable single/double beam optics for highly accurate and precise results under various conditions.





Results obtained under optimized conditions. Actual experimental results may vary.

SPECTROMETER

Primary Optics	Full reflection, high light throughput, switchable single/double beam optics. Narrow beam optical design for flame and furnace configuration. Aberration corrected Czerny-Turner monochromator with software controlled wavelength selection and optimization
Focal length	300 mm
Optical Resolution	0.2 nm, Mn 279.5 & 279.8 nm peak ratio > 20%
Band Pass	Software adjustable 0.2, 0.6 and 1.2 nm and 0.6 nm reduced slit height for GF. Bandwidth is automatically selected
Grating	Diffraction grating with 1800 lines/mm
Wavelength Range	185-900 nm controlled by software
Wavelength Accuracy	From 185-900nm < 0.2 nm
Wavelength Precision	< 0.3 nm
Dynamic baseline stabilitity	±0.004A / 30 min
Measurement Units	Peak height, peak area
Background Correction	Rapid self-reversal method. Deuterium lamp with 1 ms rapid response for accurate correction. Electronic modulation with deuterium current control and aperture attenuation
PMT	High quantum efficiency from 185-900 nm, automatic gain control
Light Source	8 lamp motorized turret with independent power supply for up to 6 lamps simultaneous warm up of lamps. Automatic selection, positioning and alignment
Built-in High Intensity Power Supply	Two (2) channel independent high intensity power supply provides improved sensitivities and lower detection limits
Dimensions / Weight	W 84.0 x D 68 x H 80 cm / 125 kg

ATOMIZERS

Standard Atomizer	Flame; transversely heated graphite furnace
Atomizer switch	Automatic (F/GF)
Optional Atomizer	Vapor and hydride generator (VG); N2O flame
Safety System	Liquid level trap, burner head identification, auto shut down of flame, GF cooling water and argon gas flow monitoring and alarm
FLAME:	
Spray Chamber	Solid Teflon nebulizing spray chamber, with tailor-made high proficiency nebulizer with glass capillary and metal jacket
Gas control	Auto gas control, auto-switch between air and nitrous oxide, auto optimization of acetylene flow rate and burner height
Flame Ignition	Automatic
Performance	2ppm Cu Abs > 0.4, RSD =< 0.5%
GRAPHITE FURNACE:	
Graphite Furnace (GF)	Transversely heated graphite furnace, built in graphite furnace power supply, heating rate of 3800K/sec
GF Heating Program	Ramp, step, temperature holding, maximum 30 programmable heating steps
Performance	1ppb Cd Abs > 0.3, RSD =< 2.0%
VAPOR/HYDRIDE GENERATOR:	
VG Control Mode	Electro-heating, continuous flow peristaltic pump with speed control, high efficiency mixing section and gas-liquid separation

SAMPLE PREPARATION

Autosampler	Universal XYZ autosampler, compatible with all atomizer types. Enables on-line dilution for flame/GF system, micro sample introduction for flame system (50-500 µL), sampling volume for GF (1-100 µL, 1 µL increment), many modifiers can be added (individually or simultaneously)
Emission Mode	Measures intensity of emission
Operation Control	External PC connection

NOTE: Instrument specifications may change without notice as an ongoing effort of product improvement.

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