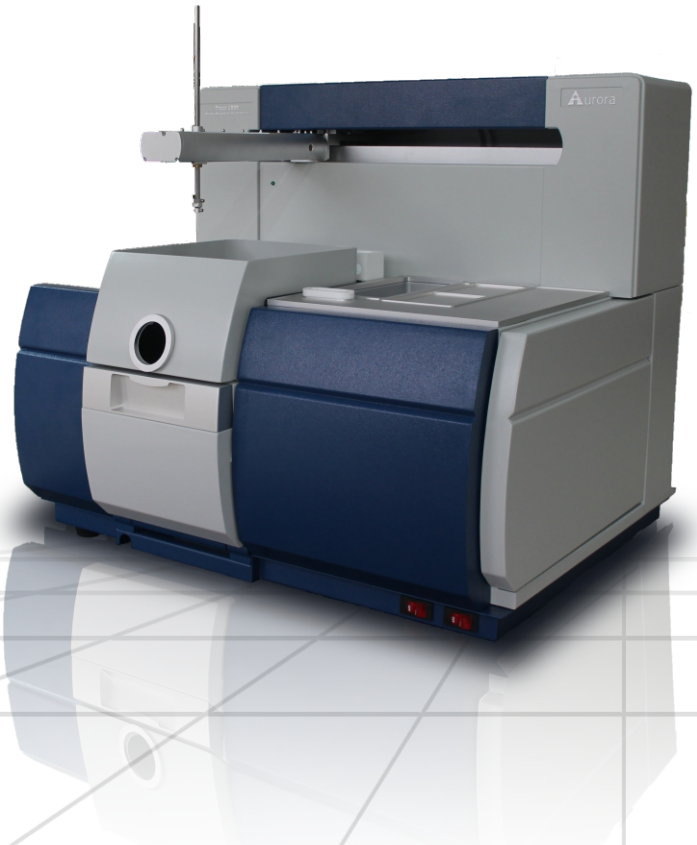
Aurora
Illuminating Solutions

TRACE 1800 Atomic Absorption Spectrometer

Elemental Analysis

Current industry demands require that elemental analysis embodies higher precision and sensitivity, with lower detection limits than ever before. Aurora has built a reputation as a leading manufacturer of atomic absorption and atomic fluorescence spectrometry. 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 generates faster results while providing superior accuracy through the integration of novel full reflection optic design. Its patented micro-volume sample injection along with the full reflection optic design allows the TRACE 1800 to provide highly efficient analysis of samples from 50-500µL (in flame mode). The TRACE 1800 is ideal for use in many applications requiring a high quality precision instrument such as food & drug safety and medical applications.



FEATURES

- **Full reflection optic design** is highly efficient with no wavelength discrimination within full wavelength range, ensuring the highest image sharpness for each elemental analysis.
- **Two direction eight (8) lamp turret** with auto-switch and independent power supplies for up to 6 lamps simultaneous warm up & two high intensity power supplies.
- **Fast wavelength scan** takes less than 100 seconds to scan from 185-900 nm providing results quickly enabling higher throughput.
- **Micro-volume sample injection** for flame AAS from 50-500 µL. Requires only 50 µL sample solution to complete a flame test. This enables high precision testing when sample sizes are limited.
- **Universal XYZ autosampler** is compatible with all types of atomizers and provides access to any (customized or Aurora's pre-defined) sample vials (F, GF, & VG).
- **Switchable single/true double beam optics** ensures highly accurate, highly precise results under various conditions.
- **Auto-switch** between flame (F) and graphite furnace (GF) atomizers provides a highly efficient software controlled process.
- **Transversely heated GF** tube with GF heating rate up to 3800 K/sec maintains a uniform temperature distribution and allows GF tube to quickly reach an appropriate isothermal state.
- **Integrated graphite furnace video camera system** provides a convenient way to observe the sample injection procedure and drying stage.
- **Full safety features** GF cooling water flow and argon flow monitoring alarms, other safety features and auto-shutdown in case of power failure.
- **Self-reverse and industry leading 1 kHz D_2** background correction ensures the accuracy of results.
- **Online dilution** enables automatic dilution from a single stock standard solution to create entire sets of calibration standards for both flame and graphite furnace.
- **Automatic acetylene flow rate control and optimization** ensures hands-free operation, increasing productivity.
- **Titanium burner head** Durable construction ensures a long life with low interference.
- **Solid Teflon nebulizer chamber** chemically inert, providing superior resistance to corrosive reagents.

SPECTROMETER

Primary Optics	Full reflection High light throughput switchable single/true 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 > 4
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	±0.006A / 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	W 84.0 x D 68.5 x H 73.5cm

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 =< 3.0%
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), maximum 3 modifiers can be added (individually or simultaneously)
Emission Mode	Yes. 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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