

MGA-1000

Zeeman Graphite Furnace Spectrometer
with Electrothermal Atomization



KEY TECHNOLOGIES

- ❖ Zeeman High Frequency Polarization Modulation (ZHFP) background correction
- ❖ Simultaneous measurement of total and background absorptions provides accurate background correction even for complex sample matrices
- ❖ High intensity electrodeless discharge lamps (EDL) ensure lower detection limits compared to traditional hollow cathode lamps (HCL) and make possible direct As and Se determination at ppb and sub-ppb levels without hydride generation technique
- ❖ The stabilized temperature platform furnace (STPF) concept is implemented
- ❖ Quasi-double beam optics eliminate drifts and enable direct work with no warm-up needed
- ❖ Cold Vapor / Hydride Generation technique available
- ❖ Noiseless operation and compact size

HIGH ANALYTICAL PERFORMANCE

- ❖ Simple and direct analysis of samples with high salt and organic content including blood and biological fluids, sea water and brines, some food and soil digests, etc.
- ❖ Lower detection limits for the elements for which EDLs are available. Thus Sb, As, Bi, Cd, Pb, P, Se, Te, Tl, Sn and Zn can be determined in a variety of complex samples without pre-concentration and hydride generation technique

AUTOMATION & USABILITY

- ❖ Plug & Measure convenience
- ❖ User-friendly software for setting operating conditions, results storage and processing
- ❖ PC controlled 6-lamp turret designed for main types of Hollow Cathode Lamps and Electrodeless Discharge Lamps
- ❖ Smart autosampler with all essential functions
- ❖ Safety self-control



ANALYTES

Limits of detection (LOD) for model samples

1 H																2 He					
3 Li	4 Be															5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg															13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr				
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe				
55 Cs	56 Ba	71 Lu	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn				

Legend: <0.1 ppb 0.1-1 ppb >1 ppb

INDUSTRIES

Graphite Furnace Atomic Absorption Spectroscopy (GFAAS) is an excellent solution for trace element analysis in various fields:

- ❖ Environmental monitoring
- ❖ Water treatment
- ❖ Food and Beverages
- ❖ Agriculture
- ❖ Pharmaceuticals and Life science
- ❖ Medicine and Biochemistry
- ❖ Forensics and Clinical research
- ❖ Petrochemistry and Refineries
- ❖ Process control and Material analysis
- ❖ Science and Research

For laboratories with not too high sample throughput, GFAAS secures optimal combination of high selectivity, sensitivity and low-cost analysis.

The lists of standards (ISO, ASTM, EN, EPA, AOAC, etc.) applicable to MGA-1000 spectrometer are available at www.lumexinstruments.com

LOW COST ANALYSIS

- ❖ Standard graphite tubes (28 mm) of both Massman and L'vov types are available
- ❖ The autosampler works with standard plastic vials and Eppendorf®-type tubes
- ❖ Prolonged tube lifetime

SPECIFICATIONS

Spectral range	185–900 nm
Furnace heating rate	up to 4500 K/sec
Argon flow rate (high purity argon)	< 1 l/min
Maximum temperature of the furnace atomizer	3000 °C
Tube lifetime	800 analysis cycles
Size	800x475x310 mm
Weight	50 kg

SERVICE & SUPPORT

- ❖ Trainings and Seminars
- ❖ Warranty and Post-warranty Service
- ❖ Customized analytical procedures by request and Validation Support
- ❖ Consumables Supply