

# MGA-1000

Zeeman Graphite Furnace Spectrometer  
with Electrothermal Atomization



## Key technologies

- ✓ Simultaneous measurement of total and background absorptions with Zeeman High Frequency Polarization Modulation (ZHFPM) background correction
- ✓ Electrodeless Discharge Lamps (EDL) provide low detection limits and direct As and Se determination at sub-ppb levels without hydride generation technique
- ✓ Stabilized temperature platform furnace (STPF) concept is implemented
- ✓ Quasi-double beam optics eliminate drifts and enable direct work with no warm-up needed
- ✓ Gas-phase dynamic dilution system expands the list of applications – analysis of trace elements as well as major components is possible
- ✓ Compact and effective cooling system in the starter-pack
- ✓ Cold Vapor/Hydride Generation apparatus is available

## High analytical performance

- ✓ Simple direct analysis of samples with high salt and organic content: blood, body fluids, sea water, brines, food and soil digests, etc.
- ✓ With EDLs, determination of Sb, As, Bi, Cd, Se, and other elements doesn't require pre-concentration and hydride generation technique
- ✓ Gas-phase dynamic dilution system and know-hows of Lumex Instruments enable analysis of Na, K, Mg, and Ca from sub-ppb to hundreds of ppm levels

## Automation and usability

- ✓ Plug and measure convenience
- ✓ User-friendly software
- ✓ 6-lamp turret receives hollow cathode lamps and electrodeless discharge lamps
- ✓ Smart 47-positions autosampler
- ✓ Noiseless operation and compact size
- ✓ Safety self-control

## Analytes

Limits of detection (LOD) for model samples

■ <0.1 ppb   
 ■ 0.1–1 ppb   
 ■ >1 ppb

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	57–71 La-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

## Industries

MGA-1000 spectrometer is an excellent solution for reliable and accurate trace elements analysis and major cations determination 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

Graphite Furnace Atomic Absorption Spectrometry (GFAAS) provides optimal combination of high selectivity and sensitivity with low running cost.

The lists of standards (ISO, ASTM, EN, EPA, AOAC, etc.) applicable to MGA-1000 spectrometer are available at [www.lumexinstruments.com](http://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 centrifuge-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
Maximal temperature of the furnace atomizer	3000 °C
Tube lifetime	800 analysis cycles
Autosampler capacity	47 samples
Size	800×475×310 mm
Weight	50 kg

## Service and support

- ✓ Trainings and seminars
- ✓ Warranty and post-warranty service
- ✓ Customized analytical procedures by request and validation support
- ✓ Consumables supply



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