

Ultra Compact Atomic Emission Elemental Analyzer

MH-5000



**Plasma
emission**

Ultra compact
&
high sensitivity

- Ultra compact, handheld
- Ease of use
- On-site use with batteries driven
- Measurable up to 6 elements at a time
- Detection limit : 0.1 ppm - 100ppm
- For process control, soil check, water check, and food check



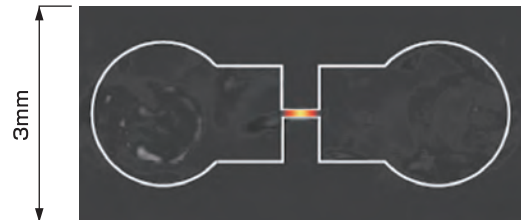
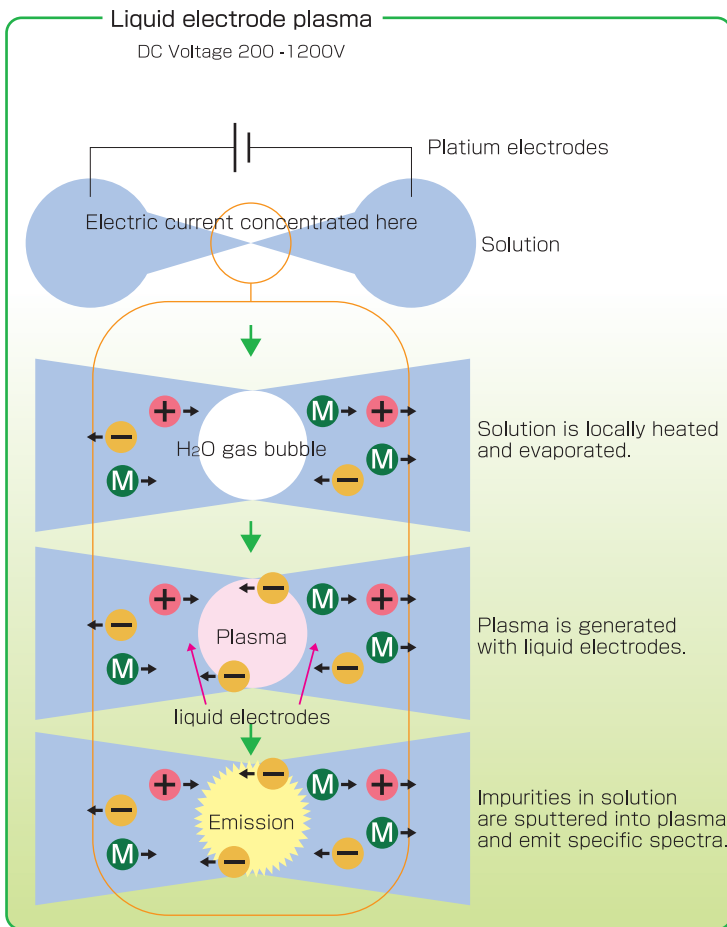
MH-5000

Plasma emission type

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Emission Principle



An example of plasma emission

Features

- 40 microliter sample is enough to measure.
- No gas canister, No measuring reagent.
- Ease of maintenance.

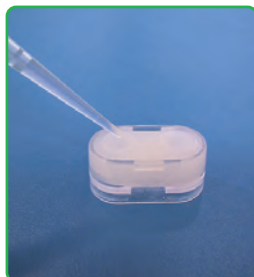
This system does not require nebulizer, plasma gas, high power.

Sample preparation

To measure a sample with the MH-5000, set the sample in LepiCuve, the small dedicated cuvette. A trace elements can be measured with a sample of as little as 40 microliter.



Prepare a small emission cuvette, LepiCuve.



Inject a sample in LepiCuve through either of the two openings at the top.



Equalize the right and left solution levels by using a syringe.



Set a LepiCuve, and shut the lid of the apparatus.

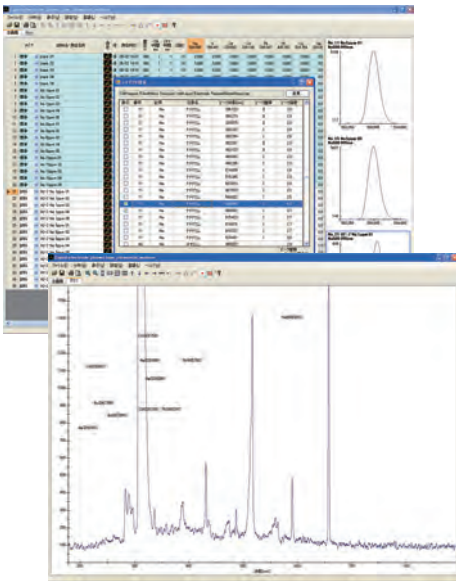


After the screen displays "Resistance OK!", measurement can be made.

Combined with a personal computer

LEP_Analyzer

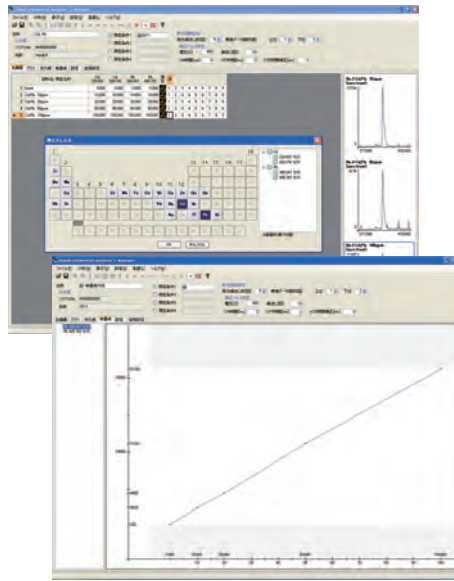
For technical experts of analysis
(for qualitative / quantitative analysis)



Wavelength selection display and qualitative analysis display

MH_Manager

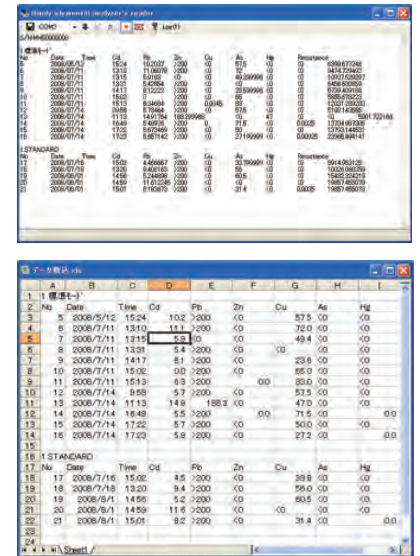
For persons in charge of maintenance on-site



Measurement condition display and calibration curve setting display

MH_Reader

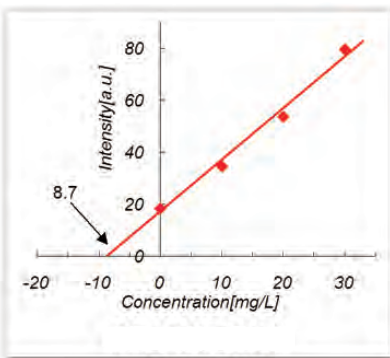
For persons in charge of periodical measurement
(for reading concentration data only)



Data reading display and processed example

Examples of sample measurement

Example of measuring potassium in mineral water by standard addition method



Relation between additive amount and emission amount

Pretreatment

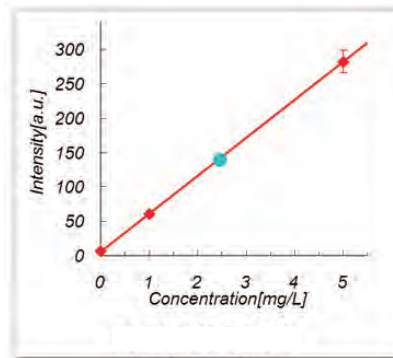
Adjusted to 0.1M HNO₃ by adding HNO₃ into sample

Measurement result

8.7[mg/L]

Comparative value by atomic absorption analysis method 9.3[mg/L]

Example of measuring lead in sea bottom material by absolute calibration curve method



Relation between lead concentration and emission amount

Pretreatment

Add 0.6mg sample into heated 20ml 1M hydrochloric acid. After that, shake, stand still, and filter supernatant solution. Then concentrate 10ml filtrate to 10 times by using solid-phase extraction cartridge for lead separation enrichment.

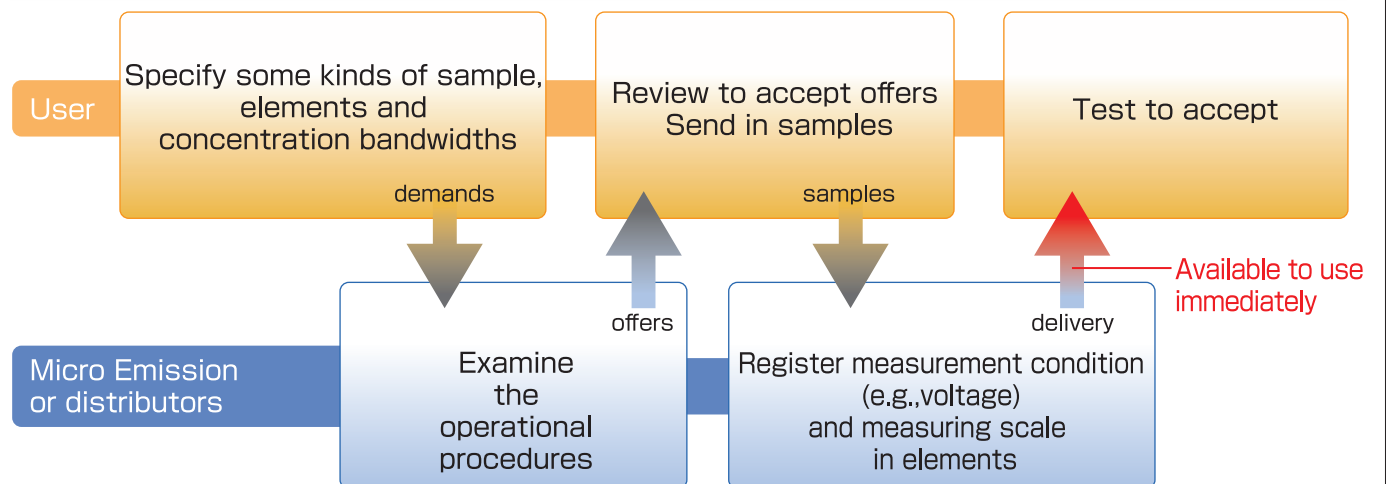
Measurement result

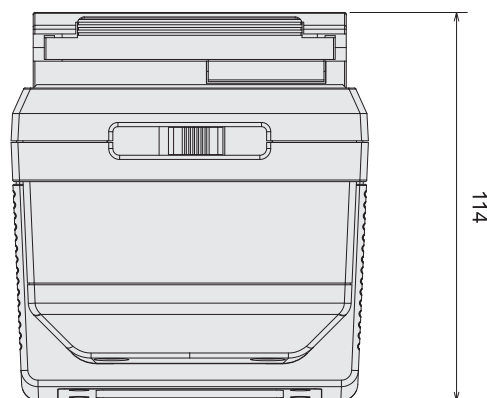
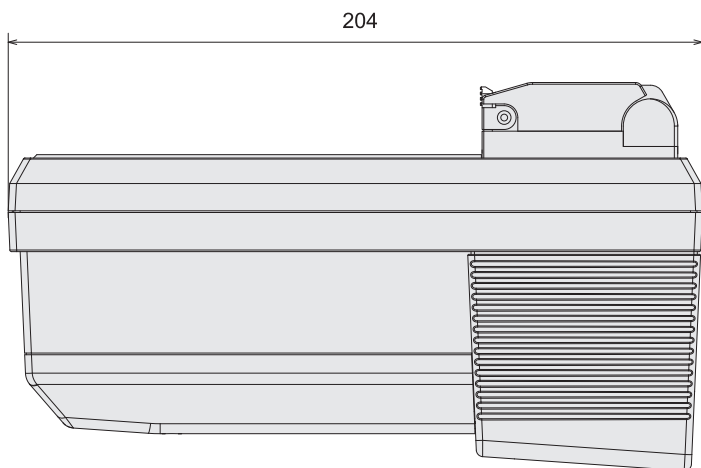
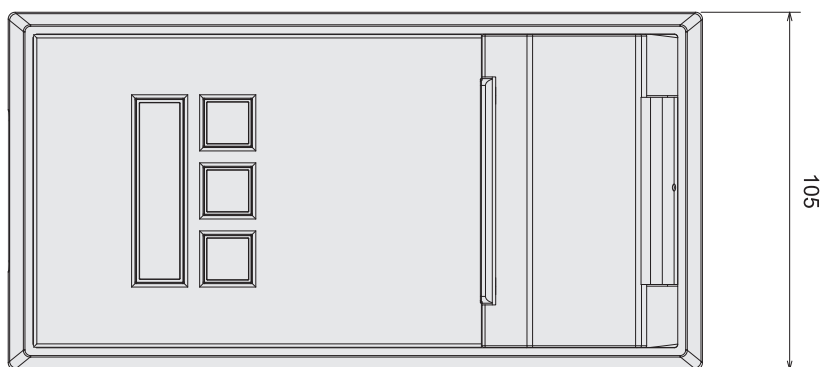
Shaking filtrate 2.49±0.06[mg/L]

In terms of concentration in sea bottom material 85.5±2.1[mg/kg]

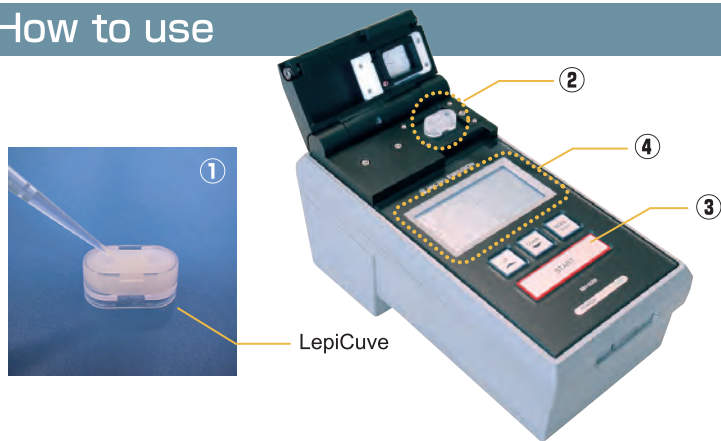
Certified value 82.7±3.8[mg/kg]

Flow up to product delivery





How to use



- ① Inject liquid sample into an emission cuvette, LapiCuvette.
 - ② Set the LapiCuvette on the apparatus.
 - ③ Push the start button, and wait several tens of seconds.
 - ④ The concentrations up to 6 elements are shown on the display.
- ※ Variable 4 ways of measurement condition by button operation only.
 ※ 6 elements used in combination are variable.

Specification detail

Size	204mm(L)×105mm(W)×114mm(H)	
Weight	approximately 1400g (including batteries)	
Power supply	Batteries (six AA size) or an AC adapter	
Measurement time	For 1 minute approximately	
Measurement at the same time	Up to 6 elements (customizable setting of selected elements)	
Measurement mode	4 modes (measurable different liquid sample quality, different elements)	
Display digit	2 - 3 digits	
Detection limit	0.1 ppm - 100ppm (depends on elements and samples)	
Data saving	50 concentration data and latest spectrum	
Application softwares with personal computer	LEP Analyzer	Display of specific spectra Qualitative analysis, Quantitative analysis (absolute calibration curve method)
	MH Manager	Setting methods to apply voltage in each mode Setting calibration curves and wavelengths in each element
	MH Reader	Reading concentrations shown on display (for the measurement of 50)



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