

Trace₂O[®]

ENVIRONMENTAL TESTING TECHNOLOGY



**SPECIALIST MANUFACTURERS OF ENVIRONMENTAL
ANALYSIS AND MONITORING EQUIPMENT**

T₂O[®]



AquaSafe WSL50
Traceo

PORTABLE HEAVY METAL ANALYSERS

METALYSER® RANGE

In recent years, there has been an increasing global public health concern associated with environmental contamination by toxic heavy metals. Human exposure has risen dramatically as a result of their use in several industrial, agricultural and technological applications. Environmental pollution is very prominent in areas where mining, foundries, smelters and other metal-based industrial operations are located.

Toxic heavy metals and metalloids, such as arsenic, cadmium, chromium, mercury, lead and thallium, are toxic to humans even at very low concentrations. Metals are known to bio-accumulate in the food chain, particularly in fish and other aquatic life.

The impact on human health of toxic heavy metals cannot be understated. Symptoms of heavy metal toxicity can be incredibly wide-ranging, affecting virtually all organ systems, in addition to a range of cold and flu-like symptoms. The long-term effects of toxic metal exposure include permanent brain damage, disability or death.

To comply with their legal and ethical responsibilities to protect the population and the environment, companies must carefully monitor their effluent discharges to ensure that contamination remains within safe levels. Unfortunately, with the expense and time delays of laboratory analysis, speedy results and prompt responses remain a huge challenge to industry.

Trace2o® has developed the patented Metalyser® range of products to meet the urgent need for an affordable, portable solution for low-level heavy metal screening in the field. The modern, eye-catching design of the Metalyser® handheld unit combines a rugged, waterproof chemical- and UV-resistant housing with high-quality precision electronics. All Metalyser® kits include a comprehensive array of accessories and consumables, housed in a hard-shell waterproof carry case, offering a truly field-ready heavy metals analysis system.

The patented Metalyser® system is ideally suited to environmental monitoring and incident response applications, where low-cost time-critical results are essential, and is the perfect tool for heavy metal dispersion studies as part of pollution research programmes.

Patent No. GB2481541

INTRODUCTION TO OUR TECHNOLOGY

The Metalyser® instrument uses a technique called stripping voltammetry. This is an electrochemical analysis method that was theorised in 1922 by the Czech chemist and Nobel prize winner, Jaroslav Heyrovský.

The technique measures the current inside an electrochemical cell, which occurs during the reaction of an analyte at the surface of a working electrode. Stripping voltammetry involves pre-concentrating, or accumulating, the analyte (metals) onto the surface of the electrode, before reversing the process and removing the accumulated analyte, measuring the signal as this occurs.

Whilst the concept is nearly 100 years old, it is only recently that high-tech electronics and sophisticated software have allowed the evolution of truly portable systems.

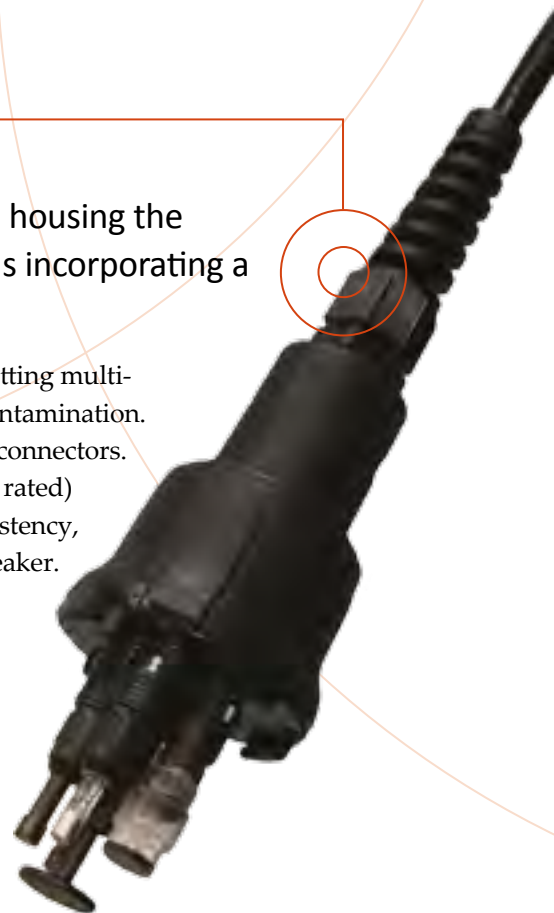
The Metalyser® uses the familiar three-electrode cell, comprising of a platinum counter electrode which forms the circuit, miniaturised Ag/AgCl reference electrode to measure the cell voltage, and working electrode (normally glassy carbon) where the reaction takes place. These electrodes are mounted within the sonde, which also includes a stirrer and temperature sensor. The handheld unit comprises potentiostat, data processing and control circuitry, as well as software.

Typically, the Metalyser® will use the technique of anodic stripping voltammetry. This relies on metals having an electrode potential at which they can be reduced or oxidised, known as the redox potential. On applying a voltage that is more negative than the redox potential, the positively charged metal ions will be reduced at the working electrode surface – this is the accumulation. The voltage is then increased positively, causing the accumulated metal to be oxidised. When the oxidation reaction occurs, electrons flow through the solution, causing a current surge in the cell that can be measured; the current is directly proportional to concentration.

SONDE

The patented Metalyser® sonde is fully submersible, housing the working, counter and reference electrodes, as well as incorporating a stirrer and integral temperature probe.

Connectors for up to three working electrodes are provided, permitting multi-parameter analysis within a single unit without the risk of cross-contamination. The waterproof electrodes include uniquely user-friendly push-fit connectors. The sonde is connected to the handheld unit by a waterproof (IP67 rated) 0.7m-long cable with optional extension. To ensure optimum consistency, the sonde also incorporates a fixed-volume self-levelling sample beaker.



BENEFITS OF RANGE

BENEFIT	FEATURE
Accurate results on site, with no need for costly, time-consuming laboratory analysis	Field-based analysis of heavy metals in water at low ppb levels
Fast, reliable results facilitate immediate action	Speedy sample preparation in the field
Built for tough environments, allowing for operation even in adverse weather conditions	Robust, dustproof and waterproof instrumentation (IP67-rated)
Low cost per test means an affordable alternative to laboratory based AAS/ICP-AES techniques	Simple user-friendly reagent system
Fully handheld graphical analysis, visible in challenging lighting conditions from single kit, with no need for bulky computer equipment	LCD full graphics backlit display with protected screen
Easily record and save results for subsequent data analysis	Internal data logger with capacity for 1000 results
Simple transfer of data to PC	USB connectivity

PRODUCT SELECTOR CHART – PORTABLE

PARAMETER	HM500	HM1000	HM2000	HM3000
Cd	□	●	●	●
Pb	□	●	●	●
Hg	□	●	●	●
As (III)	□	●	●	●
As (Total)	□	□	□	□
Cu	□	●	●	●
Zn	□	●	●	●
Mn	□	□	●	●
Cr (VI)	□	□	●	□
Ni	□	□	●	□
Bi	□	X	X	□
Co	□	X	X	□
Au	□	X	X	□
Se	□	X	X	□
Sn	□	X	X	□
Tl	□	X	X	□
Sb	□	X	X	□
Al	X	X	●	X
B	X	X	●	X
Fe	X	X	●	X

● = Supplied as standard

□ = Optional upgrade

X = Not available on this instrument

HM1000

A lightweight portable heavy metals analysis system, offering accessories and consumables for up to ten possible parameters in a single waterproof hard-shell carry case.

The intelligent handheld unit can calculate results from a single-point standard addition with ease, offering an inexpensive yet powerful screening tool for the field.

BENEFITS OF HM1000

BENEFIT	FEATURE
Fast, accurate results without PC	Built-in data analysis software
An ideal tool for rapid, effective field screening or process validation	Single lightweight waterproof kit
Less time spent recording results, giving greater efficiency	High capacity data logger (1000 results)

TECHNICAL SPECIFICATIONS

Operation:

- ⊙ Analytical principle: Anodic & Cathodic stripping voltammetry using disc working electrodes
- ⊙ Parameters measured: Arsenic (III), Total Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel & Zinc
- ⊙ Operating Temperature: -20°C to +70°C

Data:

- ⊙ Internal memory: 1000 data sets with facility to enter sample number, time and date
- ⊙ Transfer via USB to PC
- ⊙ Application method updates can be downloaded to the unit via USB

User Interface:

- ⊙ LCD full graphics backlit display: 128 x 128 pixels
- ⊙ Joystick cursor control, Menu driven software





Power:

- ⦿ Rechargeable battery providing in excess of 50 tests per charge
- ⦿ Alternative power supply via mains adaptor or vehicle cigarette lighter

Approvals:

- ⦿ Waterproof to IP67; CE Mark

Kit:

- ⦿ Dimensions: 487mm (L) x 386mm (W) x 229mm (D); net weight: 9Kg

PARAMETER		LOWER LIMIT OF DETECTION (PPB)	WHO GUIDELINE VALUE (PPB)
Arsenic (III)	As (III)	5	<10
Arsenic (Total)	As (Total)	10	<10
Cadmium	Cd	3	<3
Chromium	Cr (VI)	50	<50
Copper	Cu	5	<2000
Lead	Pb	5	<10
Manganese	Mn	5	<100
Mercury	Hg	5	<6
Nickel	Ni	10	<70
Zinc	Zn	5	<4000

Order code – HM1000

HM2000

An enhanced portable heavy metals analysis system, with a combination of electrochemical and photometric instruments for improved ranges and additional parameters.

The Metalyser® offers easy field detection of cadmium, lead, zinc, mercury and arsenic, as well as low-range copper and manganese. The Metalometer offers high-range copper and manganese, whilst adding aluminium, boron, iron, chromium (VI) and nickel. Dual technologies offer a flexible solution for heavy metal screening applications.

BENEFITS OF HM2000

BENEFIT	FEATURE
Greater testing utility within a single kit	Larger number of parameters
Reduced need for on-site dilution, allowing faster results	High-range testing capability with Metalometer instrument
Fast, accurate results without PC	Built-in data analysis software

TECHNICAL SPECIFICATIONS

Operation:

- Analytical principles: Anodic & Cathodic stripping voltammetry; fixed wavelength visible absorption Parameters measured: Aluminium, Arsenic, Boron, Cadmium, Chromium (VI), Copper, Iron, Lead, Manganese, Mercury, Nickel & Zinc
- Operating Temperature: Metalyser® -20°C to +70°C; Metalometer +5°C to +40°C

Data:

- Metalyser® internal memory: 1000 data sets with facility to enter sample number, time and date, transfer via USB to PC
- Metalometer internal memory: 16 data sets, time and date stamp, sample number, transfer via IR to PC

User Interface:

- Metalyser®: LCD full graphics backlit display: 128 x 128 pixels
- Joystick cursor control, menu driven software
- Metalometer: 4 digit backlit LCD, 4 button rubber keypad





Power:

- ⦿ Metalysers®: Rechargeable battery providing in excess of 50 tests per charge
- ⦿ Alternative power supply via mains adaptor or vehicle cigarette lighter
- ⦿ Metalometer: 4x user replaceable AAA cells – alkaline

Approvals:

- ⦿ Metalysers®: Waterproof to IP67, CE conformity
- ⦿ Metalometer: Waterproof to IP68, CE conformity

Kit:

- ⦿ Dimensions: Case 1 487mm (L) x 386mm (W) x 229mm (D); net weight: 9Kg
- ⦿ Case 2 411mm (L) x 322mm (W) x 168mm (D); net weight: 4.5kg

PARAMETER		LOWER LIMIT OF DETECTION (PPB)	WHO GUIDELINE VALUE (PPB)
Aluminium	Al	10	N/A
Arsenic (III)	As (III)	5	<10
Arsenic (Total)	As (Total)	10	<10
Boron	B	100	<2400
Cadmium	Cd	3	<3
Chromium	Cr (VI)	20	<50
Copper	Cu	5	<2000
Iron	Fe	20	N/A
Lead	Pb	5	<10
Manganese	Mn	5	<100
Mercury	Hg	5	<6
Nickel	Ni	100	<70
Zinc	Zn	5	<4000

Order code – HM2000

HM3000

A professional portable heavy metals analysis system, combining the reliable Metalyser® handheld unit with a high-quality waterproof 10 inch tablet PC, offering enhanced levels of precision and accuracy.

The tablet PC permits multi-point standard addition analysis, and with the manual peak height calculation function, peaks can be measured that automatic techniques cannot detect. The spreadsheet function can average data, calculate correlation coefficients, draw best fit lines and calculate the original sample concentration. With these tools the field user can detect levels as low as 1ppb with confidence. With a range of 16 possible parameters, the HM3000 is an extremely powerful instrument for field heavy metal analysis.

BENEFITS OF HM3000

BENEFIT	FEATURE
Single, easily transportable unit can handle multiple parameters	Extensive testing capability for up to 16 metals and metalloids
Offers laboratory-quality results and data analysis in the field	Built-in 10.1" touch-screen Windows-based tablet PC with bespoke software
A genuine lower-cost alternative to expensive, time-consuming laboratory analysis	Lowest detection limits of the entire Metalyser® range

TECHNICAL SPECIFICATIONS

Operation:

- ⊙ Analytical principle: Anodic & Cathodic stripping voltammetry using disc working electrodes
- ⊙ Parameters measured: Antimony, Arsenic (III), Total Arsenic, Bismuth, Cadmium, Chromium, Cobalt, Copper, Gold, Lead, Manganese, Mercury, Nickel, Selenium, Thallium, Tin, Zinc
- ⊙ Operating Temperature: -20°C to +70°C

Data:

- ⊙ Results transferred to integrated tablet PC and automatically stored
- ⊙ New application methods can be downloaded to the PC via GSM mobile internet (requires local SIM card and data subscription)

User interface:

- ⊙ LED 10.1" touch screen
- ⊙ Menu driven software





Power:

- ⦿ Metalyser® rechargeable battery providing in excess of 50 tests per charge
- ⦿ Tablet PC with 6 hour run time and hot swap feature
- ⦿ Alternative power supply via mains adaptor or vehicle cigarette lighter

Approvals:

- ⦿ Metalyser® Instrument waterproof to IP67; CE mark; waterproof (IP65-rated) tablet PC

Tablet PC:

- ⦿ Intel® quad-core N2930 1.83GHz Processor with 2.16 GHz boost, 4 GB DDR3 RAM, 128 GB SSD, genuine Windows® (64-bit), 10.1" widescreen 1366x768 resolution LED display, resistive single touch interface, 5MP camera, USB 3.0, RS-232, VGA, RJ45 and micro-SD interface, 802.11 ac a/b/g/n Dual Band 2.4/5GHz WLAN, integrated GPS, 4G cellular data connectivity (LTE/GSM/GPRS)

Kit:

- ⦿ 2 x waterproof case, individual dimensions: 487mm (L) x 386mm (W) x 229mm (D); total net weight: 18Kg

PARAMETER		LOWER LIMIT OF DETECTION (PPB)	WHO GUIDELINE VALUE (PPB)
Antimony	Sb	10	<20
Arsenic (III)	As (III)	1	<10
Arsenic (Total)	As (Total)	10	<10
Bismuth	Bi	10	N/A
Cadmium	Cd	1	<3
Chromium	Cr (VI)	50	<50
Cobalt	Co	20	N/A
Copper	Cu	1	<2000
Gold	Au	10	N/A
Lead	Pb	1	<10
Manganese	Mn	1	<100
Mercury	Hg	1	<6
Nickel	Ni	10	<70
Selenium	Se	5	<40
Thallium	Tl	1	N/A
Tin	Sn	10	N/A
Zinc	Zn	5	<4000

Order code – HM3000

HM500

YOUR NEEDS, YOUR SPECIFICATIONS, YOUR METALYSER®

A customisable portable heavy metals analysis system, the HM500 offers a modular system for a tailored Metalyser® kit designed around your needs.

The compact HM500 kit incorporates all standard accessories required for analysis, and is combined with a choice of individual starter packs for each parameter; each including working electrode, plating solution, buffers and standards, and sample beaker, to complete the analysis system. The HM500 can be operated as a handheld unit, or combined with the optional 10.1" tablet PC, which includes enhanced software for precision field analysis, including multi-point standard addition and linear regression, as well as accurate peak detection capability for complex samples. The HM500 is ideal for parameter-specific monitoring applications, offering a lower-cost customisable alternative for low-ppb level heavy metal monitoring.

BENEFITS OF HM500

BENEFIT	FEATURE
Reduces costs of unnecessary extra accessories and consumables – only buy what is needed	Fully customisable modular heavy metals analysis system
Can be added to existing kits for greater testing utility	Compatible with entire Metalyser® range of products
A perfect device for the highly mobile water quality engineer	Compact, lightweight waterproof portable kit
Flexible to match the needs of the water quality engineer with changing testing demands	Retrospective upgrade capability

TECHNICAL SPECIFICATIONS

Operation:

- Analytical principle: Anodic & Cathodic stripping voltammetry using disc working electrodes
- Parameters measured: Antimony, Arsenic (III), Total Arsenic, Bismuth, Cadmium, Chromium, Cobalt, Copper, Gold, Lead, Manganese, Mercury, Nickel, Selenium, Thallium, Tin, Zinc
- Operating Temperature: -20°C to +70°C

Data:

- Internal memory: 1000 data sets with facility to enter sample number, time and date
- Transfer via USB to PC
- Application method updates can be downloaded to the unit via USB

User interface:

- Menu driven software





Power:

- ⊙ Rechargeable battery providing in excess of 50 tests per charge
- ⊙ Alternative power supply via mains adaptor or vehicle cigarette lighter

Approvals:

- ⊙ Waterproof to IP67; CE mark

Kit:

- ⊙ Dimensions: 487mm (L) x 386mm (W) x 229mm (D); net weight: 9Kg

PARAMETER		LOWER LIMIT OF DETECTION (PPB)	WHO GUIDELINE VALUE (PPB)
Antimony	Sb	10	<20
Arsenic (III)	As (III)	5	<10
Arsenic (Total)	As (Total)	10	<10
Bismuth	Bi	10	N/A
Cadmium	Cd	3	<3
Chromium	Cr (VI)	50	<50
Cobalt	Co	20	N/A
Copper	Cu	5	<2000
Gold	Au	10	N/A
Lead	Pb	5	<10
Manganese	Mn	5	<100
Mercury	Hg	5	<6
Nickel	Ni	10	<70
Selenium	Se	5	<40
Thallium	Tl	5	N/A
Tin	Sn	10	N/A
Zinc	Zn	5	<4000

METALYSER® LAB RANGE

The Metalyser® Benchtop laboratory range offers a user-friendly, inexpensive option for lab-based heavy metals analysis with cleverly designed benchtop instrumentation.

Traditionally, laboratory analysis of heavy metals has been a costly, bulky and labour-intensive undertaking, requiring large, pricey equipment and associated installation expenses, as well as continuous running costs and dedicated experienced technicians to operate.

Trace2o® offers a revolutionary solution with the Metalyser® Benchtop range. With considerably lower capital costs than other laboratory heavy metals analysis instrumentation and no idle-running expenses, the Metalyser® Benchtop range is a realistic cost-effective alternative to AAS, ICP-AES and ICP-MS techniques.

The Metalyser® Benchtop instruments have an extremely modest footprint, ideally suited to busy, space-conscious modern laboratories. Without the need for static installation, gas lines, extraction apparatus or temperature-controlled ambience, the Metalyser® Benchtop instruments fit around existing laboratory equipment with ease, with genuine 'plug and play' functionality. The lightweight unit is compact enough to be stored in a cupboard when not in use.

The Metalyser® Benchtop instruments all comprise a compact, variable-volume electrochemical cell, with working, reference and counter electrodes, housed inside an electrostatically dissipative enclosure, thus minimising external electromagnetic interference, as well as dust accumulation. The automatic sample elevation platform minimises sample and electrode disturbance during analysis, greatly improving repeatability. The wireless connectivity functionality enables remote control of the instrument, protecting delicate computing equipment from spillages.

The Metalyser® Benchtop range includes options for users of all abilities. For routine laboratory analysis, the HM5100 instrument couples simple, pre-programmed analysis methods, with bespoke data analysis software, offering a powerful laboratory heavy metals analyser. For the experienced electrochemical researcher, the HM5000 offers enhanced capabilities such as full control over all electrochemical methods, a range of scan and stripping techniques, and an innovative built-in gas purging system to minimise interference from oxygen.

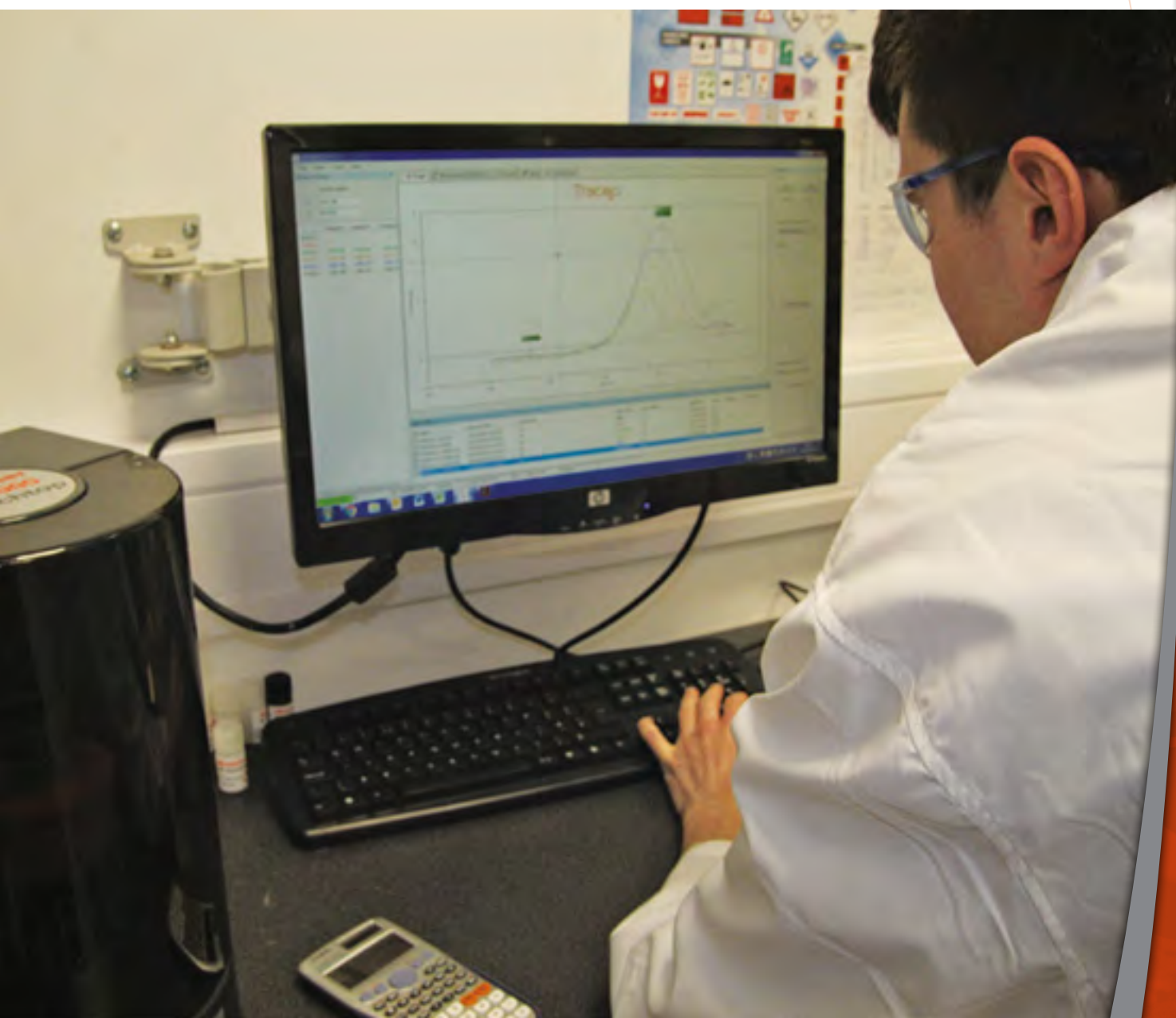
The Metalyser® Benchtop electrodes and reagents are all compatible with portable Metalyser® systems, rendering Metalyser® the instruments of choice for an extensive heavy metals monitoring programme.

Patent No. GB2481541



BENEFITS OF RANGE

BENEFIT	FEATURE
Minimal installation costs, can be fitted seamlessly into existing laboratory setup	Compact footprint and easy installation requirements
Reduces external electromagnetic interference for reduced background signal and improved sensitivity	Lightweight plastic instrument housing
Minimises sample and electrode disturbance during analysis, improving repeatability	Computer-controlled automatic sample elevation platform
Single equipment cost – no need for additional peripherals or accessories	Compact variable-volume graduated electrochemical cell with integrated stirrer and temperature sensor
Easily and simply connects with existing IT infrastructure, irrespective of location in the laboratory	USB and wireless connectivity
A fully integrated instrument control, data collection and analysis solution eliminates need to transfer between software packages	Powerful bespoke control and analysis software



HM5100

A pre-programmed professional laboratory heavy metals analysis system, incorporating the revolutionary Metalyser® technology housed in a benchtop unit, offering enhanced levels of precision.

The powerful Metaware software permits multi-point standard addition analysis, and with the manual peak height calculation function, peaks can be measured that automatic techniques cannot detect. The spreadsheet function can average data, calculate correlation coefficients, draw best fit lines and calculate the original sample concentration. With these tools the laboratory user can detect levels as low as 1ppb with confidence. With a range of 16 possible parameters, the HM5100 is an extremely powerful instrument for laboratory heavy metal analysis.

BENEFITS OF HM5100

BENEFIT	FEATURE
Easy to use, both for inexperienced technicians, and technically-minded water quality analysts	Pre-loaded method parameters for the analysis of 16 heavy metals
Considerably reduced cost when fully equipping a heavy metal screening programme	Fully compatible with portable Metalyser® instruments and reagents
A genuinely cost-effective alternative to traditional laboratory analysis techniques such as AAS and/or ICP-AES	Low capital and running costs, no need for gas lines, extraction apparatus, temperature control

TECHNICAL SPECIFICATIONS

Operation:

- Analytical principle: Anodic & Cathodic stripping voltammetry using disc working electrodes
- Parameters measured: Antimony, Arsenic (III), Total Arsenic, Bismuth, Cadmium, Chromium, Cobalt, Copper, Gold, Lead, Manganese, Mercury, Nickel, Selenium, Thallium, Tin, Zinc
- Operating Temperature: 0°C to +70°C

Data evaluation:

- Peak height calculation, base line subtraction, standard addition, calibration curve, linear regression/spreadsheet calculation

User Interface:

- Full PC control via USB or wireless connectivity
- Metaware Benchtop graphical control software





Power:

- ⦿ 12-15V DC, 1.5A, 2.1mm DC jack (Optional battery supply)

Approvals:

- ⦿ CE Mark

Instrument:

- ⦿ Dimensions: 370mm (L) x 200mm (W) x 210mm (D); net weight: 3.5Kg

PARAMETER		LOWER LIMIT OF DETECTION (PPB)	WHO GUIDELINE VALUE (PPB)
Antimony	Sb	10	<20
Arsenic (III)	As (III)	5	<10
Arsenic (Total)	As (Total)	10	<10
Bismuth	Bi	10	N/A
Cadmium	Cd	3	<3
Chromium	Cr (VI)	50	<50
Cobalt	Co	20	N/A
Copper	Cu	5	<2000
Gold	Au	10	N/A
Lead	Pb	5	<10
Manganese	Mn	5	<100
Mercury	Hg	5	<6
Nickel	Ni	10	<70
Selenium	Se	5	<40
Thallium	Tl	5	N/A
Tin	Sn	10	N/A
Zinc	Zn	5	<4000

Three starter packs of your choice included as standard.

Order code – HM5100

HM5000

A complete professional laboratory voltammetry research system, allowing full control over the range of electrochemical parameters.

The bespoke software offers the user complete control of full capabilities of the potentiostat, including a variety of voltammetric scan parameters and stripping techniques. Designed by electrochemists, for electrochemists, the innovative HM5000 Benchtop instrument incorporates an automated sample elevation platform, compact electrochemical cell, as well as built-in nitrogen purging capability, with gas inlet valve and regulator controlling flow directly to the cell. With no costly installation prerequisites and no need for toxic mercury drops, the HM5000 is the ideal tool for undergraduates, post-graduates and experienced researchers alike.

BENEFITS OF HM5000

BENEFIT	FEATURE
A great voltammetry research tool suitable for all experience levels	Full range of scan methods and stripping techniques
Users can design bespoke methods from scratch to carry out innovative electrochemical detection procedures specific to their individual needs	Complete control of all electrochemical parameters
Simple elimination of nascent oxygen interference during complex voltammetric analysis	Integrated nitrogen purge functionality with built-in regulator

TECHNICAL SPECIFICATIONS

Operation:

- ⦿ Analytical principle: Anodic & Cathodic voltammetry
- ⦿ Measurement techniques: Square wave, differential pulse, linear sweep, cyclic voltammetry
- ⦿ Operating Temperature: 0°C to +70°C
- ⦿ Working electrodes: 3mm glassy carbon disc
- ⦿ Counter (Auxiliary) electrode: Platinum foil
- ⦿ Reference electrode: Silver/silver chloride double junction
- ⦿ Nitrogen: 4mm push fit inlet, 3mm PTFE rigid outlet, max pressure 10Bar



PARAMETER		LOWER LIMIT OF DETECTION (PPB)	WHO GUIDELINE VALUE (PPB)
Antimony	Sb	10	<20
Arsenic (III)	As (III)	5	<10
Arsenic (Total)	As (Total)	10	<10
Bismuth	Bi	10	N/A
Cadmium	Cd	3	<3
Chromium	Cr (VI)	50	<50
Cobalt	Co	20	N/A
Copper	Cu	5	<2000
Gold	Au	10	N/A
Lead	Pb	5	<10
Manganese	Mn	5	<100
Mercury	Hg	5	<6
Nickel	Ni	10	<70
Selenium	Se	5	<40
Thallium	Tl	5	N/A
Tin	Sn	10	N/A
Zinc	Zn	5	<4000

Data evaluation:

- Peak height calculation, base line subtraction, standard addition, calibration curve, linear regression/spreadsheet calculation

User Interface:

- Full PC control via USB or wireless connectivity
- Metaware Benchtop graphical control software

Power:

- 12-15V DC, 1.5A, 2.1mm DC jack (Optional battery supply)

Approvals:

- CE Mark

Instrument:

- Dimensions: 370mm (L) x 200mm (W) x 210mm (D); net weight: 3.5Kg

POTENTIOSTAT SPECIFICATIONS

DC-potential range	± 2.000 V
Compliance voltage	± 2.000 V
Applied DC-potential resolution	1 mV
Accuracy	≤ 0.2%
Potential measurement resolution	1 mV
Current ranges	1 nA to 1 mA (7 ranges)
Maximum measured current	± 20 mA typical, ± 15 mA minimum
Maximum current	± 20 mA
Current resolution	0.1% of current range (1 pA on lowest range)
Current accuracy	≤ 0.2% of current range (100 nA to 100 µA) ≤ 0.5% (1 mA, 10nA), ≤ 1% (1 nA) with additional 0.2% offset error



METALYSER® ACCESSORIES

With our range of accessories, compatible with the full range of Metalyser® instruments, the user can complete their dedicated heavy metals analysis system in the field, with a range of capabilities to overcome a multitude of challenges in heavy metals analysis.

HMUV1825

Surface and ground water can contain complex organic compounds, originating from vegetation, animals, biological effluents, soils etc. These organic compounds bond with metal ions, rendering them electrochemically inactive, and thus the metal cannot be detected using a Metalyser® instrument.

The HMUV1825 UV Digester uses dual-wavelength UV light to break down and denature the organic compounds, releasing the heavy metal ions into solution for subsequent detection using a Metalyser® instrument.

The digester uses easy-clean Tygon tubing, and incorporates a programmable countdown timer with audible alarm system, permitting variable length digestion procedures. Sample volumes can be varied between 50mL and 250mL depending on the requirements of the user. The operation can be verified using the convenient UV-protected inspection window. The lamp is user-replaceable, and the lamp housing incorporates a safety interlock switch to assist in protecting users from damaging UV light.

The compact unit, comprising integrated peristaltic sampling pump, UV lamp with inspection window, and built-in countdown timer, is all housed in a waterproof carry case.

BENEFIT	FEATURE
Sample is repeatedly exposed to intense UV light throughout digestion, facilitating the breakdown of more complex molecules	Integrated recirculating peristaltic pumping system
Allows programmable digestion cycle enabling completely automated operation for time-efficient analysis	Built-in timer with audible alarm system

The portable version, the HMUV1825P, utilises a companion portable power pack that provides a 240V AC 30W supply, housed in a waterproof enclosure, allowing easy use for digestion requirements in the field.

BENEFITS OF HMUV1825P

BENEFIT	FEATURE
Field-ready equipment for easy digestion in remote locations	Waterproof enclosure and accompanying portable power pack
Easily see battery charge status to avoid power failures in the field	Push-button battery status indicator