



# METALYSER®

Portable Trace  
Heavy Metal Analysers



SPECIALIST MANUFACTURERS OF ENVIRONMENTAL  
ANALYSIS AND MONITORING EQUIPMENT



PORTABLE HEAVY TRACE METAL ANALYSERS





## PORTABLE TRACE HEAVY METAL ANALYSERS

# METALYSER®

The Metalyser® range of portable trace metal analysers has been developed to enable rapid, accurate and easy-to-use heavy metal determination in the field or in the lab. Whether it's an expert laboratory scientist looking for a low-cost alternative to AAS, or a busy environmental technician with a heavy workload.

Developed to address the troubling rise in public health concerns associated with heavy metal contamination, the patented Metalyser® technology offers rapid, accurate analysis of over 20 metal species at detection limits below 1 ppb, with virtually no sample preparation. A compact, lightweight kit provides all the tools for laboratory quality analysis, at a fraction of the price.

The portable range utilises IP68-rated waterproof and dustproof rugged instrumentation, built for field applications and packaged with all necessary accessories and a starter pack of consumables, in a hard-shell waterproof carrying case. The laboratory instruments are designed for ease of use coupled with high levels of accuracy and precision, offering a powerful addition to environmental testing laboratory installations.





# THE TECHNOLOGY

The Metalyser® instrument uses an electrochemical analysis technique called anodic stripping voltammetry (ASV), which was first developed in 1922.

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 and deposit onto the surface. 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.

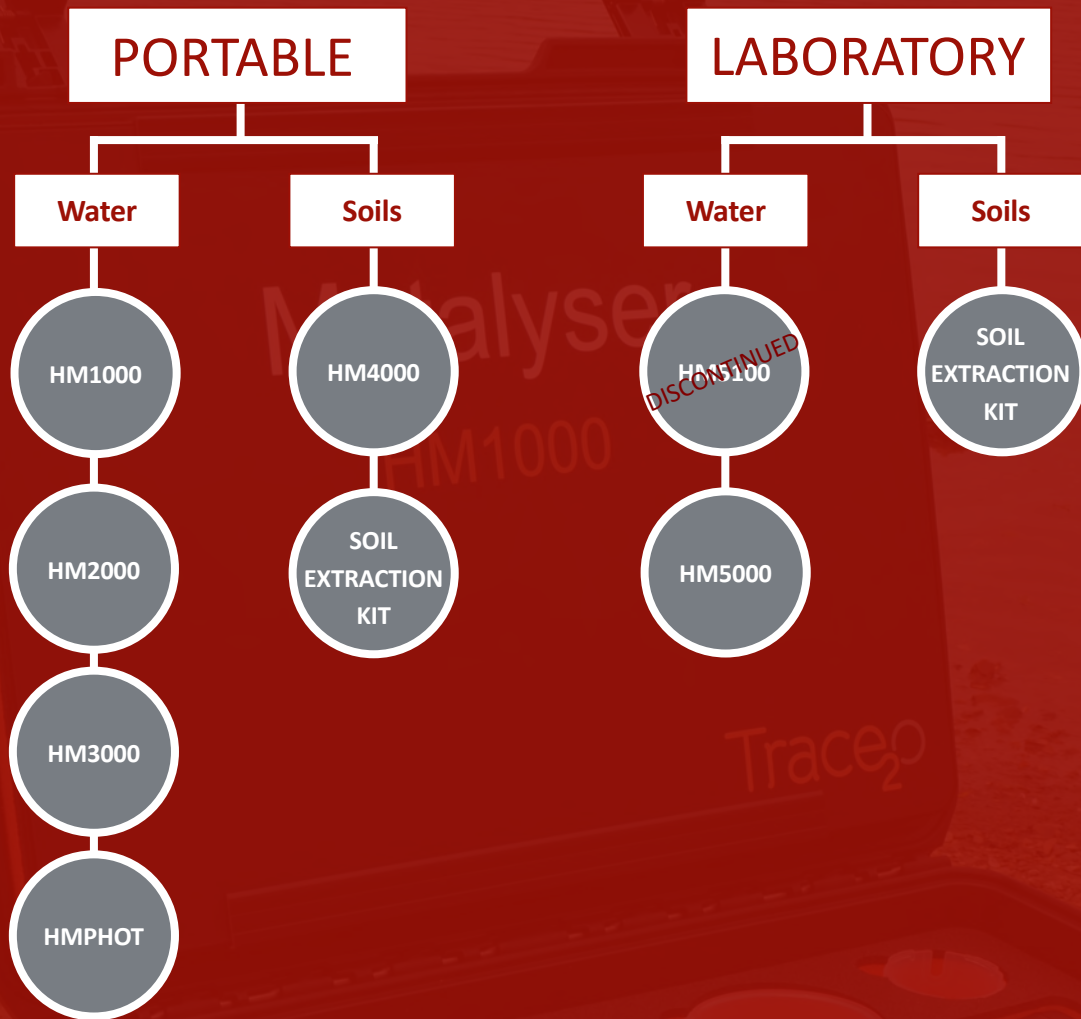
The Metalyser® uses a three-electrode cell, comprising of a working electrode (normally glassy carbon) where the reaction takes place, a platinum counter electrode which completes the circuit, and a miniaturised Ag/AgCl reference electrode to measure the cell voltage.

These electrodes are mounted within the patented submersible sonde, which also includes a stirrer and temperature sensor. The handheld unit comprises potentiostat, data processing and control circuitry, as well as software.





# KIT SELECTOR



Element selector – water testing instruments

	HM1000	HM2000	HM3000	HMPHOT	HM5100	HM5000
Al		✓		✓		
As (III)	✓	✓	✓		+	+
As (III + V)	+	+	+		+	+
Au			+		+	+
B		✓		✓		
Bi			+		+	+
Cd	✓	✓	✓		+	+
Co			+		+	+
Cr (VI)	+	✓	+	✓	+	+
Cu	✓	✓	✓	✓	+	+
Fe		✓		✓		
Hg	✓	✓	✓		+	+
Mn	+	✓	✓	✓	+	+
Ni	+	✓	+	✓	+	+
Pb	✓	✓	✓		+	+
Sb			+		+	+
Sn			+		+	+
Tl			+		+	+
Zn	✓	✓	✓		+	+

✓ = included as standard + = optional add-on All soils kits can analyse As (III + V), Cd, Cu, Hg, Pb and Zn as standard.



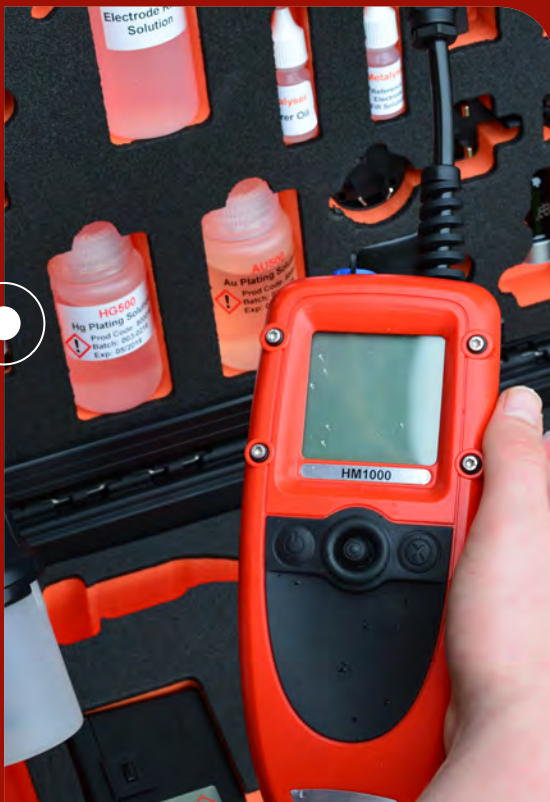
# METALYSER® BENEFITS

## PATENTED SONDE HEAD DESIGN

- ⊙ Fast easy multiple measurement capability with the fully submersible sonde head capable of multiparameter measurement
- ⊙ No sample loss or false results. Three separate working electrodes ensure no cross contamination
- ⊙ Fast and hassle free probe maintenance with push fit connections
- ⊙ Consistent results guaranteed with the self-levelling sample analysis beaker



## COMPARABLE WITH LABORATORY TECHNIQUES



- ⊙ Save money with low costs per test compared traditional techniques
- ⊙ Never stretch your budget. The initial capital expense is a fraction of a laboratory alternative
- ⊙ Complex laboratory infrastructure is no longer needed. The unit is self-contained in a single case
- ⊙ Save time and resources using the Metalyser® as the perfect triage solution, reducing the burdens on laboratory time and personnel
- ⊙ Reduce the risk of false negatives or results that do not represent the original sample. Testing at the point of source ensures all data is accurate
- ⊙ Measurement as low as 0.1ppb/0.1µg/L as reliably as ICP-MS and ICP-OES at a fraction of the cost
- ⊙ Rapid test method means multiple samples can be tested with minimal sample preparation in a short space of time



## PORTABLE HEAVY TRACE METALS LABORATORIES

### HM1000 METALYSER® PORTABLE

An economy level trace heavy metals analyser, offering a total of 10 different parameters down to 3ppb, with completely automated analysis and interpretation on the powerful handheld unit.

**Available parameters**

As (III), As (III + V), Cd, Cr (VI) Cu, Hg, Mn, Ni, Pb, Zn



### HM2000 METALYSER® DELUXE

A multi-technology instrument, offering electrochemical and photometric techniques to enable testing of a wider range of 13 parameters at a wide spectrum of detection limits.

**Available parameters**

Al, As (III), As (III + V), B, Cd, Cr (VI) Cu, Fe, Hg, Mn, Ni, Pb, Zn



### HM3000 METALYSER® FIELD PRO

An advanced trace heavy metals analyser, with integrated waterproof tablet PC and powerful bespoke software, both of which enable the user to analyse our widest range of metals, at detection limits as low as 0.1ppb.

**Available parameters**

Au, As (III), As (III + V), Bi, Cd, Co, Cr (VI) Cu, Hg, Mn, Ni, Pb, Sb, Sn, Tl, Zn





## LABORATORY UNITS AND PHOTOMETRY

### HM5100 METALYSER® LAB PRO

A laboratory trace heavy metals analyser, with plug-and-play functionality and no installation requirements, enabling the user to easily analyse the full range of metals in the lab, at detection limits as low as 0.1ppb.

**Available parameters**

Au, As (III), As (III + V), Bi, Cd, Co, Cr (VI) Cu, Hg, Mn, Ni, Pb, Sb, Sn, Tl, Zn



### HM5000 METALYSER® BENCHTOP

A benchtop laboratory potentiostat and voltammetric analysis system, utilising powerful software and an innovative nitrogen purging system, to enable low-cost research-level electrochemical analysis.

### METALOMETER®

A lightweight, portable metals photometer for fast, easy field analysis of 7 common metals and metalloids. With laboratory-quality optics and a user-friendly reagent system, the Metalometer® is a powerful tool both coupled with a Metalyser®, or as a standalone instrument.







## SOIL ANALYSIS

### HM4000 METALYSER® SOILS

Specifically designed for heavy metals analysis in soils, the HM4000 incorporates an innovative digestion system to simulate the release of bioavailable heavy metal contamination, providing a powerful tool for a wide range of soil and sediment applications.

#### Available parameters

As (III + V), Cd, Cu, Hg, Pb, Zn



### METALYSER® LAB SOILS EXTRACTION KIT



The ideal companion to a laboratory Metalyser®, the Laboratory Soils Extraction Kit provides the full suite of digestion equipment and consumables, enabling soil analysis to be carried out in the lab using the existing capabilities of the Metalyser® Benchtop instruments.

### METALYSER® PORTABLE SOILS EXTRACTION KIT

Compatible with any existing portable Metalyser® product, the Portable Soils Extraction Kit adds digestion capability, allowing easy integration of soils analysis to an environmental monitoring programme using familiar, proven technology.





## SAMPLE PREPARATION

### LABORATORY UV DIGESTER

A sample digester, used for denaturing and breaking down organic constituents of water samples, releasing metal ions for analysis with the Metalyser® range. Utilising dual wavelengths, the HMUV1825 hugely enhances the testing capabilities of any Metalyser® instrument.



### PORTABLE UV DIGESTER



A portable UV sample digester, coupling a powerful dual wavelength recirculating digestion system with a high-capacity battery pack, enabling portable sample digestion to provide a complete field heavy metals analysis solution.





# PRODUCTS

DESCRIPTION	PACK SIZE	PART NUMBER
Metalyser® Portable HM1000	Unit	HM1000
Metalyser® Deluxe HM2000	Unit	HM2000
Metalyser® Field Pro HM3000	Unit	HM3000
Metalyser® Soils HM4000	Unit	HM4000
Metalyser® Benchtop Analysis HM5100 - discontinued	Unit	HM5100
Metalyser® Benchtop Research HM5000	Unit	HM5000
Portable Metalometer® Kit	Unit	HMPHOT
Portable UV Digester- 240V	Unit	HMUUV1825P-240
Portable UV Digester- 110V	Unit	HMUUV1825P-110
UV Digester Portable Power Pack	Unit	HMUVPP
Metalyser® Portable HM1000 PLUS Portable UV Digester	Unit	HM1000UV
Portable Soils Extraction Kit	Unit	HMPSEK
Laboratory UV Digester - 240V	Unit	HMUUV1825-240
Laboratory UV Digester- 110V	Unit	HMUUV1825-110
Laboratory Soils Extraction Kit	Unit	HMLSEK
<b>CONSUMABLES AND REAGENTS</b>		
Combined Consumables Pack for Cd, Pb, Cu, Zn	200 tests	HMCPC50/4
Combined Consumables Pack for Hg	200 tests	HMHGC50/4
Combined Consumables Pack for As	200 tests	HMA5C50/4
Combined Consumables Pack for Mn	200 tests	HMMNC50/4
Combined Consumables Pack for Cr (VI) Portable units	200 tests	HMCRC50/4
Combined Consumables Pack for Cr (VI) benchtop units	200 tests	HMCRC50/4B
Combined Consumables Pack for Ni	200 tests	HMNIC50/4
Combined Consumables Pack for Bi	200 tests	HMBIC50/4
Combined Consumables Pack for Co	200 tests	HMCOC50/4
Combined Consumables Pack for Au	200 tests	HMAUC50/4
Combined Consumables Pack for Se	200 tests	HMSEC50/4
Combined Consumables Pack for Sn	200 tests	HMSNC50/4
Combined Consumables Pack for Tl	200 tests	HMTLC50/4
Combined Consumables Pack for Sb	200 tests	HMSBC50/4
<b>ACCESSORIES</b>		
WE1 glassy carbon working electrode	Unit	HMELWE1
WE2 glassy carbon working electrode	Unit	HMELWE2
WE3 glassy carbon working electrode	Unit	HMELWE3
Ag/AgCl reference electrode	Unit	HMELREF
Pt counter electrode	Unit	HMELCNT
Sonde extension cable (1.3m)	Unit	HMSONEX



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