MODERNWATER | MicroTrace™ PDV

Trace Metal Analysis to 0.5ug/l

Measuring trace metals in water, soil and food has always been a vital part of modern environmental monitoring. Voltammetry offers an internationally accepted alternative to laboratory analysis. Modern Water's PDV provides excellent on-site characterization of pollution hot spots and contamination sources.

- Single instrument can be configured to measure up to 24 different metals
- Analyze in the lab or the field down to 0.5 µg/L – below drinking water regulations for many target metals
- Traditional & Simplified Chinese user interface now available (VAS only)
- More accurate, higher sensitivity and less susceptible to interference than colorimetric methods
- Excellent Correlation with Laboratory Methods (AAS, ICP-MS) but much lower capital and operating costs.
- 30 years of application development, validation studies and academic references
- Solid electrodes-multi-year lifetimes and no hazardous elemental mercury.
- Standalone field instrument- compact, light weight carrying case allows for field use
- Speciation of selected metals by lability & oxidation state
- AC or rechargeable battery for on-site use
- High levels of accuracy and repeatability
- Fast analysis on site, combined with low cost per test allow;
  - immediate identification of problems
  - interactive sampling to locate and identify contamination source and extent.
  - remediation decisions to be made onsite, saving time and increasing efficiency
  - larger number of sample points, improving site characterization cutting remediation costs

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The PDV has been upgraded to allow much improved stand-alone operation and an indication of blank and standard run performance. A larger screen allows simple voltammograms to be shown. The USB connector replaces the serial port. The upgraded product can be run either on 4 x 1.5V AA batteries, or from the mains using the standard 8 - 12V DC transformer.

Applications

- Academic research
- Monitoring at remote locations
- Contaminated land remediation
- Food and feed analysis
- Tracing contamination back to source
- Accidental contamination events
- Monitoring of rivers, lakes, reservoirs, seawater
- Industrial effluent monitoring
- Groundwater monitoring / natural attenuation
- Wastewater recycling and WWTP influent monitoring
- Drinking water intake and distribution

The PDV comes with the VAS software package, which is easy to use and is compatible with Windows XP and 7. VAS enables storage and manipulation of voltammograms, operating data and in-depth data analysis.

The SV LabCell

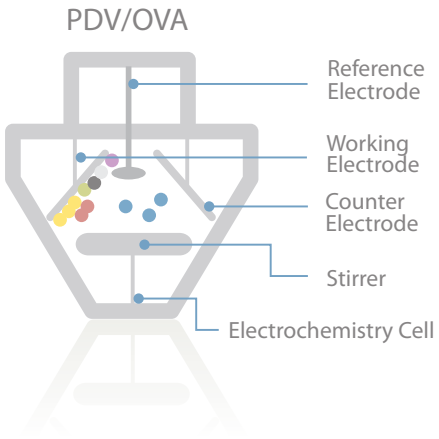
Our PDV comes equipped with a standard analytical cell which can detect a wide range of different metals. The SV LabCell is an optional extra that allows the use of Bi film which has performance advantages for cathodic stripping methods (less DO interference).

The SV LabCell extends the PDV's range of metals to include molybdenum and uranium; it also gives a better response for nickel, cobalt and chromium at low levels.

Process explained

In voltammetry metals are drawn onto the working electrode when a specific voltage is applied to the water sample under test.

When a stripping voltage is applied, the metals return to the sample solution, generating a small current. Each metal has a specific voltage at which it returns to solution. So the metal is identified by its stripping voltage, and the current generated is proportional to the concentration of metal in the sample.



TYPICAL LIMITS OF DETECTION FOR THE MICROTRACE PDV

Metal	Metal Name	PDV
Ag	Silver	0.5 µg/l
As(III)	Arsenic (III)	0.5 µg/l
As(total)	Arsenic	0.5 µg/l
Au	Gold	2 µg/l
Bi	Bismuth	2 µg/l
Cd	Cadmium	0.5 µg/l
Co	Cobalt	10 µg/l (1 µg/l *)
Cr(VI)	Chromium (VI)	5µg/l (1µg/l *)
Cr(total)	Chromium	10 µg/l*
Cu	Copper	0.5 µg/l
Fe	Iron	5 µg/l
Hg	Mercury	0.1 µg/l
Mn	Manganese	2 µg/l
Mo	Molybdenum	1 µg/l*
Ni	Nickel	5 µg/l
Pb	Lead	0.5 µg/l
Pd	Palladium	5 µg/l
Sb(III)	Antimony(III)	5 µg/l
Se(IV)	Selenium (IV)	5 µg/l
Sn	Tin	5 µg/l
Te	Tellurium	10 µg/l
Ti	Thallium	2 µg/l
U	Uranium	1 µg/l*
Zn	Zinc	0.5 µg/l

All values are dependent upon the metal(s) being analyzed and the nature of the sample. MDL based on clean water samples.
** Requires SV Labcell*

MICROTRACE PDV WITH STANDARD CELL SPECIFICATIONS

Power Supply	AC, 110 - 240V or DC 8 - 12V or 4 x AA batteries
Dimensions PDV	360mm x 270mm x 155mm (L x W x D)
Dimensions SV LabCell	220mm x 160mm x 160mm (L x W x D). Drain tank, solid-state electrodes and stand provided
Working Electrode, Std. Cell	Glassy carbon, used with a variety of films, or solid gold
Working Electrode, SV LabCell	Glassy carbon
Counter Electrode	Platinum
Reference Electrode	Ag/AgCl in KCl
Cell Material	Acrylic (Labcell only) and PTFE
Cell Stirrer	DC magnetic motor and magnetically coupled stirrer
Display	LCD graphic screen
CE Compliant	Yes
Operating Software	Windows 7, and 10; VAS, internal firmware
Communications	USB
Keypad	5 button keypad
Analysis Methods Available	Anodic stripping, Cathodic stripping
Waveforms Available	Linear sweep, square wave and differential pulse
Voltammetry Range	-2.0V to +2.0V (3.3V factory option)
Sensitivity	2 nA
Variation (%CV)	5 to 10%
Result Output	Voltammetry curves, element concentration(s), historical data
Calibration	Standard comparison or standard addition
Packing	Sturdy water-proof carry case
Stand-alone field instrument	10 programmable stand-alone menus 10 programmable conditioning menus Blank subtraction option, standard addition option (useful for dirtier water) Battery indicator
Portable laboratory instrument connected to PC or laptop	Windows OS: 7 and 10 VAS software, making the instrument a top of the range voltammetry instrument Automatic data saving, graph optimisation, print facility for all data, reports and graphs

** Requires SV Labcell*

To find out how we can help you please contact us on:

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