Skyray Instrument

99 countries & regions are using Skyray Instrument up to now

HM–3000P

Portable Water Quality Analyzer-Heavy Metals

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HM-3000P

Portable Water Quality Analyzer-Heavy Metals

Portable Water Quality (Heavy Metals) Analyzer is based on the authority-approved standard method, anodic stripping voltammetry (ASV), which features low cost and high precision and are replacing traditional atomic absorption method in Europe. It is widely applied on on-site environment detection, tap water detection, waste water testing of electroplate and surface processing industries, waste water monitoring of food, medicines, and hospitals. American EPA and other authorities have listed this method, such as EPA7063 and 7472.

This instrument not only can be used for on-site application in urgent cases (for instance, on-site testing of contaminated water), but also can be applied for precise heavy metals detection in labs.

Performance Advantages

1、Rapid testing: 30secs to 5mins testing time
2、Wide testing range: typical measurement ions include copper, cadmium, lead, zinc, mercury, arsenic, chromium, nickel, manganese, and thallium, etc
3、High precision: analytical precision accounts to 1ppb and detection limit is less than 0.5ppb
4、Electrode advantages: special make-up ensures better stability and it is easy to change and maintain
5、Intelligent: intelligent operation program guide users finishing operation easily
6、Low cost: cheap reagents and little amount of use
7、 Safe operation: non-toxic reagents ensure safety of users

Application Advantages under Urgent Cases

1、Light, convenient for carry
2、With reagents prepared for urgent cases, they can be used directly
3、Acquiring IP67 dustproof and waterproof level, this instrument can be used in tough environments
4、Semi-transmission & semi-reflection LCD provides good images under bright lights
5、Large capacity of lithium battery supports 10 hours of unremitting working or more than 100 times of continuous testing. The instrument also has the function of indicating remaining power. Another intelligent function is that it can be charged through vehicle charger
6、The instrument can store more than 2000 groups of testing data
7、 Instrument can be connected to Bluetooth printer for on-site printing of measurement results.(Bluetooth printer is optional)

Connection to Computer

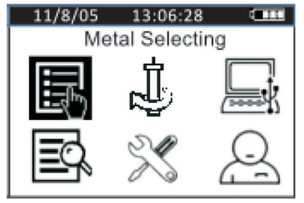
With USB port and PC software, this instrument can achieve two functions after connection to computer:
A、15 built-in programmability analytical menus enable users to develop testing parameters and methods easily
B、Achieve functions of hardware inspection, electrode maintenance, testing, submitting history data, polargram analysis, algorithm application and analysis and other operations

Application Fields

- On-site application in urgent cases (For instance, on-site testing of water pollution)
- Precise heavy metals detection in labs
- Water quality monitoring to surface water, underground water, seawater, industrial wastewater, drinking water and other waters
- Heavy metals testing in soil, food, and other waste solids (analytes should be extracted from solids before testing)

Software Advantages

1、Bilingual language interface (English and Chinese) and intelligent operation program
2、This instrument can be connected to computers for testing. Optimized algorithm improves the analytical precision to substate ppb level
3、Users can develop more testing modes and electrolyte solutions on computers for testing other heavy metals and various waters under different situations



Application Cases

Simultaneously test heavy metals in artificially contaminated water sample (with given content of Cd, Pb, Cu)

In this case, artificially contaminated water sample (with given content of 100ppb Cd, Pb, Cu) will be tested and the testing results will be calculated through single standard addition method

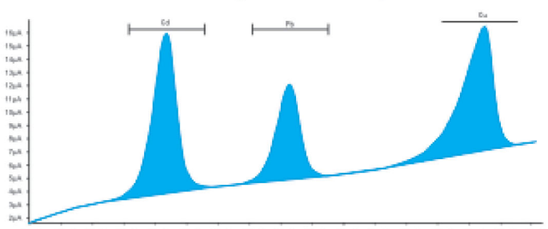
Firstly, scan the blank solution (should be smooth peaks)

Secondly, scan the standard solution (100ppb Cd, Pb, Cu), and get the stripping peak current value of Cd, Pb, Cu

Thirdly, scan the artificially contaminated water sample and get the stripping peak current value of Cd, Pb, Cu

Lastly, because peak current value is in direct proportion to concentration, the contents of Cd, Pb, Cu in artificially contaminated water sample can be figured out

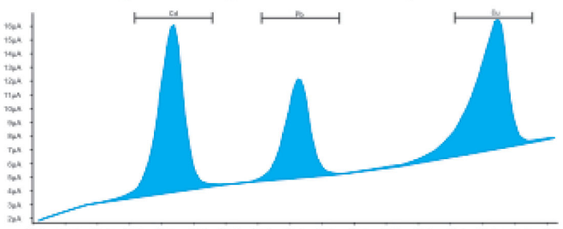
Figure of standard sample



From the above figure, peak current value of Cd, Pb, Cu are:

i_p(Cd) = 12.12 μA； i_p(Pb) = 7.201 μA； i_p(Cu) = 9.405 μA

Figure of artificially contaminated water sample



From the above figure, peak current value of Cd, Pb, Cu are:

i_p(Cd) = 12.17 μA； i_p(Pb) = 7.214 μA； i_p(Cu) = 9.388 μA

Through calculation, contents of Cd, Pb, Cu in artificially contaminated water sample are 100.4ppb, 100.2ppb, and 99.82ppb, which shows the high precision of the instrument.

Technical Specifications

Sample name	Minimum detection limit (ppb)	Maximum detection limit (ppm)	Sample name	Minimum detection limit (ppb)	Maximum detection limit (ppm)
Cu	0.1	60.0	Cr	0.5	20.0
Cd	0.1	60.0	Ni	0.5	30.0
Pb	0.1	30.0	Mn	0.1	10.0
Zn	0. 5	60.0	Tl	0.1	30.0
Hg	0.1	25.0	Fe	0.1	30.0
As	0.1	30.0	Co	0.1	30.0

Configurations

Standard reagents	Electrode cleaner	Professional analysis cups
Pipette & pipette tube	Charger and vehicle charger	
Data management software	Portable suitcase	Portable Bluetooth printer and accessories