

HD-2012

全自动镭氡分析仪

Full-automatic Radium Radon Analyzer



应用领域

适用于地质找矿、辐射防护、核事故监测、辐射剂量评价、地震预报及教学等领域。

可用于测定水、岩石、土壤等样品中放射性元素“镭”的活度，亦可用于测定大气、室内环境及矿山坑道中氡射气浓度。

符合的标准/规程

- GB 11214-1989《水中镭-226的分析测定》
- GB 50325-2020《民用建筑工程室内环境污染控制标准》
- GB/T 5750.13-2023《生活饮用水标准检验方法 第13部分:放射性指标》
- GB 5749-2022《生活饮用水卫生标准》
- GB 8538-2016《食品安全国家标准 饮用天然矿泉水检验方法》
- GB/T 13073-2010《岩石样品226Ra的测定射气法》
- GBZ/T 155-2002《空气中氡浓度的闪烁瓶测定方法》
- DZ/T 0064.75-2021《地下水水质分析方法 第75部分:镭和氡放射性的测定射气法》

Application Fields

Applied in geological prospecting, radiation protection, nuclear accident monitoring, radiation dose assessment, earthquake prediction and teaching, etc.

It can be used to determine the activity of the radioactive element radium in water, rock, soil and other samples, and measure radon concentration in the ambient air, indoor environment and mine tunnel.

The instrument meets the requirements of GB 11214-1989, GB 50325-2020, GB/T 5750.13-2023, GB 5749-2022, GB 8538-2016, GB/T 13073-2010, GBZ/T 155-2002, and DZ/T 0064.75-2021.



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仪器特点

- 采用球形ZnS (Ag) 闪烁室，灵敏度高
- 双路数字化探测器，具有单一、串行、并行三种测量模式
- 机电一体化设计，每测量周期可实现10个样品的连续自动测量，大幅提升工作效率
- 软件设计集测量控制、数据分析及存储等功能于一体，以图谱形式实时显示计数率
- 测量结果以Excel表格形式存储，方便查阅、打印并且可直接用于报告发布
- 整机通信采用工业级总线结构设计，数据传输速率高，抗干扰能力强，多重错误检测及处理机制，可靠性强
- 可按用户要求配备钍射气 (^{220}Rn) 专用分析软件

技术指标

1. 灵敏度: ≥ 110 cpm/Bq
2. 本底计数率: ≤ 2.5 cpm
3. 计数容量: $1 \sim 2^{32}$ 个脉冲
4. 重复性: 相对标准偏差 $\leq 2.7\%$
(使用表面粒子数 $1500/2\pi \cdot \text{min}^{-1}$ ^{239}Pu 表面源)
5. 准确度
 ≥ 37 Bq/g 最大允许误差 $\pm 5\%$
 ≥ 0.37 Bq/g 最大允许误差 $\pm 15\%$
6. 检出限: 0.01 Bq (5min)
7. 稳定性: 相对误差 $\leq 2.7\%$ (8h)
(使用表面粒子数 $1500/2\pi \cdot \text{min}^{-1}$ ^{239}Pu 表面源)
8. 工作效率 (8h)
串行测量: 约90个样品
并行测量: 约180个样品
9. 电源功耗: $\sim 220\text{V}/50\text{Hz}$, 约50 W
10. 使用环境
温度: $(+5 \sim +50)^\circ\text{C}$
相对湿度: $\leq 95\%$ ($+40^\circ\text{C}$)
11. 通信接口: USB 接口
12. 外形尺寸和重量
($900 \times 450 \times 800$) mm 约60 kg

仪器认证

中国计量科学研究院检定并出具检定证书

Instrument Characteristics

- Using the spherical ZnS (Ag) scintillation chamber, having high sensitivity.
- Duplex digital detector, three types of measuring modes (Single measuring, Serial measuring, Parallel measuring).
- Mechatronics design improves efficiency significantly, continuous measurement of 10 samples per cycle.
- Operating software integrated with measuring, control, data analysis and storage function can display the counting rate in real-time in a graphical format.
- The results are stored in excel for easy access, printing, and direct reporting.
- Industrial-grade bus structure is used in communication, having high data transmission rate, strong anti-interference ability, multiple error detection and processing mechanism, and strong reliability.
- Provide analysis software of ^{220}Rn , according to user's requirements.

Specifications

1. Sensitivity: ≥ 110 cpm/Bq
2. Background Counting Rate: ≤ 2.5 cpm
3. Counting Capacity: $1 \sim 2^{32}$ pulses
4. Repeatability: $\text{RSD} \leq 2.7\%$
(Using ^{239}Pu surface source with the surface number of particles of $1500/2\pi \cdot \text{min}$)
5. Accuracy
 ≥ 37 Bq/g MPE: $\pm 5\%$
 ≥ 0.37 Bq/g MPE: $\pm 15\%$
6. Detection Limit: 0.01 Bq (5min)
7. Stability: $\text{RE} \leq 2.7\%$ (8h)
(Using ^{239}Pu surface source with the surface number of particles of $1500/2\pi \cdot \text{min}$)
8. Operating Efficiency (8h)
Serial Measuring: About 90 samples
Parallel Measuring: About 180 samples
9. Power Consumption: $\sim 220\text{V}/50\text{Hz}$, about 50 W
10. Operating Environment
Temperature: $(+5 \sim +50)^\circ\text{C}$
Relative Humidity: $\leq 95\%$ ($+40^\circ\text{C}$)
11. Communication Interface: Standard USB interface
12. Dimensions and Weight
($900 \times 450 \times 800$) mm 60 kg

Instrument Certification

Verified and certified by National Institute of Metrology P.R.China (NIM).



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