

Alpha Spectroscopy System

Alpha spectroscopy is a technique widely used in the following applications

- the radiochemical analysis
- the assessment of environmental studies
- environmental radioactivity monitoring
- health physics personal monitoring
- assessment of nuclear installations, the determination of location and the study of its effect on the environment
- geological dating and mineralogy
- educational research applications

Alpha spectroscopy systems are used for measuring low activity samples that decay by Alpha-particle emission.

Alpha spectroscopy system model 1000 is used in *educational research applications* due to following features:

- Selection of different energy range
- Selection of different distances between source and detector
- Selection of various PIPS and SSB semiconductor detectors with different dimensions

vacuum chamber

The vacuum chamber of this system is designed and fabricated for following applications:

- Possibility of rapid decontamination
- Possibility of rapid sample replacement
- Possibility of replacement and use PIPS and SSB semiconductor detectors
- Possibility to use charge-sensitive preamplifier types
- Possibility of change or correct for measuring various parameters, such as the stopping power in gas
- Improvement of absolute activity measurement based on the coincidence of α -x, α - γ and β - γ
- Ability to maintain vacuum continuously and accurately

Because of the possibility of using PIPS and SSB semiconductor detectors with different thicknesses, this system in addition to the alpha particle spectrophotometry has the capability of measuring the maximum beta particles energy and determining the energy of conversion electrons for educational research purpose.

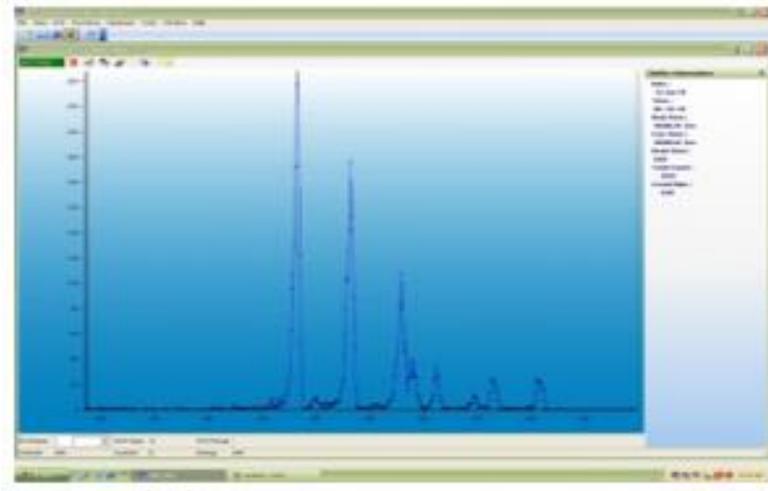


Figure (1): The natural uranium alpha spectrum of the soil and tracer that is drawn up with the alpha spectroscopy system.

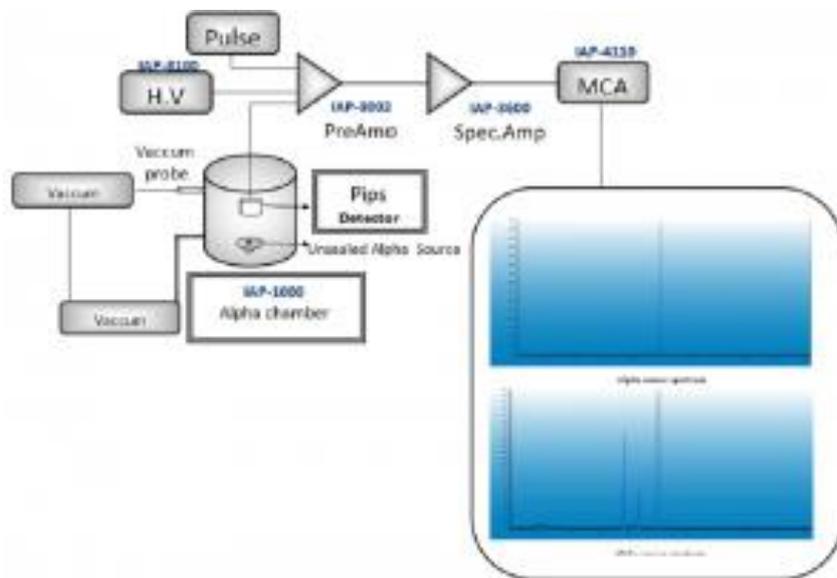


Figure (2): Modules and components of the alpha spectroscopy system

Instruments Used In Spectroscopy System

- Vacuum chamber
- Vacuum Gauge and Probe
- Alpha Source of Energy Calibration
- Alpha Source of Counting Efficiency Calibration
- Bin Power Supply Model 8000
- High Voltage Power Supply Model 8100
- Preamplifier Model 3002
- Amplifier Model 3600
- Multichannel Analyzer (MCA) Model 4110
- Vacuum Pump
- PIPS Detector
- Required Cables

All products are provided by Iman Gostar Raman Kish company.

Long Term Warranty And After Sales Service

The warranty service includes the repair or service of the instrument and the free provision of services for replacing parts and repair wages for one year, but the warranty does not apply on the following cases:

- Transport damages, electrical fluctuations, fire or heat, contact or penetration of water and corrosive chemicals, intense dust, lightning, natural disasters.
- Instruments manipulated or repaired by persons other than the company's representatives.
- Any kind of manipulation or damage on installed holograms on the instrument.
- Any displacement after installation without informing the company.
- The warranty does not cover consumables.
- After sales service is for 10 years with payment.