Skyray Instrument

EDX 6000B

X-ray Fluorescence Spectrometer

Full-element Analysis

Rapid | Accurate | Non-destructive

EDX 6000B

—— Full-element Analysis Expert

Quality gains greatness
Profession creates excellence

| Rapid | Accurate | Non-destructive |

The cost effective world-leading X-ray generator and high-voltage unit make the instrument produce results compliant with State standards.

Features:

- It performs professional full-element analysis on cement, steel, minerals, plating thickness and hazardous elements（RoHS）.
- Electric-cooling UHRD detector instead of liquid nitrogen cooling detector.
- In-built SNE improves the signal processing ability up to 25 times.
- Vacuum sample chamber, good for analyzing low content light elements.
- The collimators and filters can be switched automatically for different samples.
- Arbitrary optional analysis and identification models.
- Independent matrix effect correction models.
- Multi-variable non-linear regression procedure.
- Intelligent full-element analysis software matches with the hardware well.

Technical specifications:

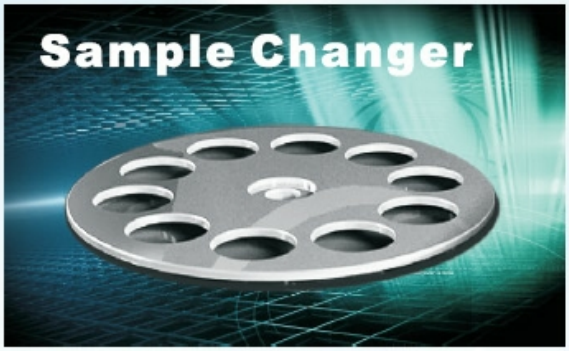
Range of measurable elements: Na to U
Range of element content: 1ppm-99.99%
Ability of simultaneous analysis: 24 elements
Detection limit: The lower detection limit of hazardous elements（Cd/Pb/Cr/Hg/Br）in RoHS directive reaches 1ppm.
Plating thickness: more than 11 layers, up to 0.005um each layer
Analysis accuracy: 0.05%(above 96%)
Forms of samples: powder, solid and liquid
Measurement time: 60-200s
Ambient Temperature: 15-30℃
Ambient Humidity: ≤70%
Working Voltage: AC 110V/220V

Unique configurations

- High efficient ultra thin end window X tube
- Electric-cooling UHRD detector
- Signal-to-Noise Enhancer (SNE)
- In-built high resolution camera
- Light path enhancement system
- Automatic collimator and filter switch
- Enhanced metal sensitivity analyzer

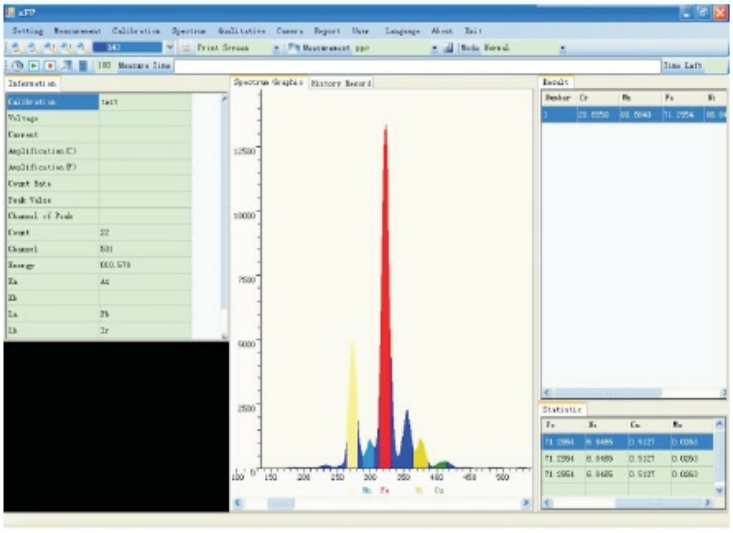
Sample Changer

- 10-position sample changer
- Simple, convenient and timesaving
- Handle a large quantity of samples automatically without manual help
- Convenient for sample loading
- Capable of analyzing solid, tablets, films, coatings, etc



FP Method

- FP method is based on calculation of theoretical intensities taking into account of inter-elemental interactions by using fundamental parameters.
- For example, we collect X-ray tube parameters (anode, target angle, Be window thickness, primary filter, kV) to calculate the tube output spectral distribution.
- In the FP Software, we estimate the matrix composition and at least one standard per element is necessary. Measured intensities are converted to their equivalent theoretical intensities in an iterative process to calculate sample concentration.



The main features of FP software

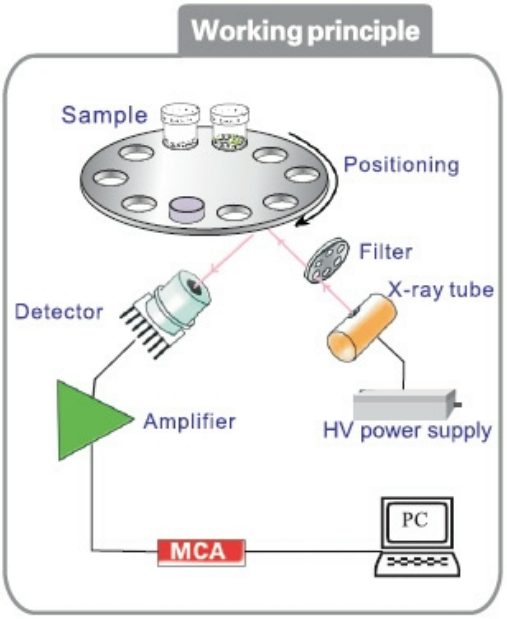
- Full implementation of the State-of-the-Art FP algorithms suitable for both bulk and multi-layer thin.
- It uses the rigorous, updated NIST (National Institute of Standards and Technology, USA) algorithm for calculating Tube Spectral Distributions in the FP implementation.
- It uses an improved algorithm for computing Mass Absorption Coefficients (MAC), derived from the most recent MAC data in the literature. This has proven to be more accurate than the commonly used Thinh - LeRoux algorithm, especially in the lower energy range and in the L-, M-, and N-edge regions of heavier elements.
- Up to 35 chemical elements in a sample system can be handled, including analytes and non-analytes. Analytes
- that can be handled by the software range from 5 to 94 in atomic number (line energies from 0.185 keV thru 60 keV).
- An Interactive Graphic Calibration Window is part of the software
- A handy help system is incorporated in the software to help on various operation details.
- Typical sample applications are provided to help the user get hands-on experience quickly and easily.

Working principle

When a substance is irradiated by X-ray beam emitted from an X-ray tube, atoms in this substance will be excited and emit the secondary X-rays, i.e. the so-called X-ray fluorescence.

Each element emits its characteristic X-ray fluorescence with the intensity proportional to the concentration of the element contained in the sample. Analysis using x-ray fluorescence (XRF) is called "X-ray Fluorescence Spectroscopy". This has been one of the most widely used methods in measuring elemental composition.

Energy Dispersive X-ray Fluorescence Spectroscopy measures X-ray fluorescence composed of characteristic X-ray photons emitted at various energy levels. These photons with different energies are received by the detector and converted into a series of electric signals which are amplified, treated and transformed into numerical values (digital signals) using electronic methods. These values are separated in a Multi-Channel Analyzer (MCA) according to their photon energies, so to form a spectrum. Then the values, after handled by software, are displayed, in the unit of element concentration, or other units.



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