EDXRF (Energy Dispersive X-ray Fluorescence Spectrometer)

In an X-Rays Fluorescence Spectrometer, the photons emitted from the source of X-rays are sent onto the sample to be chemically analyzed. Photons interacting with their atoms, for example, if they have sufficient kinetic energy, remove an electron from the atom's inner shell and bring the atom to a higher energy level from the base state. When an electron from the upper crust fills this void, it becomes energized and the atom returns to its base again. The emitted energy is the characteristic fluorescence radiation. The wavelength of the characteristic rays is fixed and element specific, which allows, for example, chemical analysis. Energy Dispersive X-Ray Fluorescence (EDXRF) spectroscopy is one of the simplest, accurate and economical analytical methods used to determine the elemental composition of various materials such as solid, liquid, powder and thin film. This technique is suitable for a large number of sample types. Using this method, quantitative analysis using appropriate standard substances can be carried out up to the level of ppm (%). Qualitative and quantitative determinations of all elements from Sodium (Na-11) to Uranium (U-92) can be done by EDXRF spectrometry.

XRF Applications:

- Environmental Examples
- Minerals and geological examples
- Examples of Chemicals and Metallurgy
- Paint Industry

- Precious Stones
- Fuel Analysis
- Food and Agricultural Samples
- Examples of Archeology

Instrument Model: Rigaku NEXCG

Instrument Hardware and Features:

X-ray tube: Pd anode, 50W maximum power, 50kV voltage, four standard secondary targets

Detector: High performance SSD

Sample reservoir: 38 cm diameter x 10 cm deep sample reservoir (for bulk samples), 15-regulated automatic sample changer (32 mm sample containers)

Spectrometer data: Single phase AC 100 / 220V, 15 / 7A (50/60 Hz)

Options: Fifth secondary target for optimal Na and Mg stimulation, sample spinner with 9-way automatic sample changer