

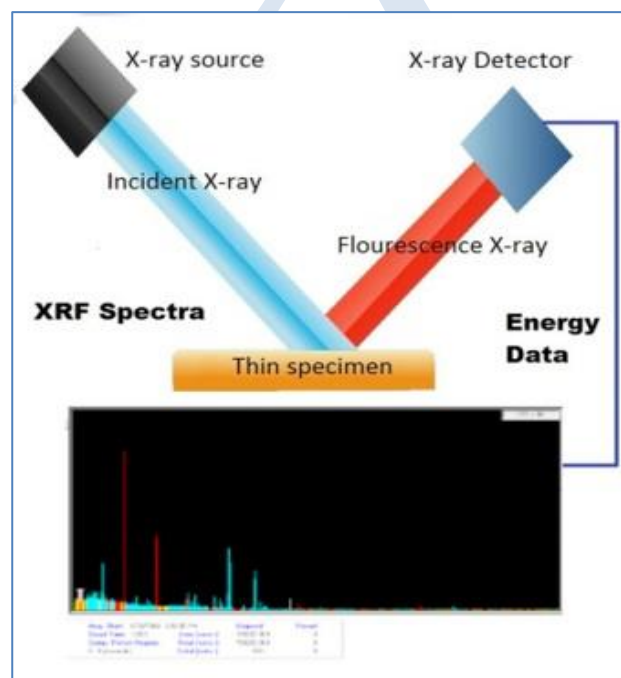
XRF Laboratory

XRF is a major nuclear analytical technique widely used throughout the world for elemental analysis. Being a non-destructive method that uses X-Rays, does not require the disintegration of sample. Therefore, it finds advantages in both commercial and R&D tests where the sample should be preserved. The XRF laboratory of the Life Sciences Division provides analytics services for commercial and research purposes that require the identification and quantification of elements.



What is X-Ray Fluorescence?

When an X-ray is incidence on a material the internal electrons of its atoms are liberated, making space for electrons in the outer shell to come down, filling this vacancy. This results in the emission of X-ray photon with energy equal to the difference between the two energy levels. This process is called X-ray fluorescence. The emitted X-ray is characteristic to the element and the process paves way for identification of elements.

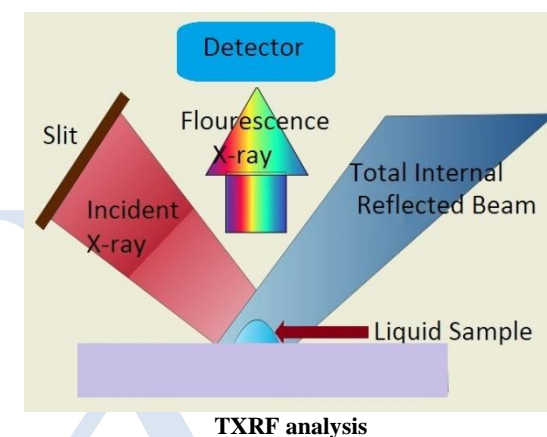


XRF analysis

Analytical Facilities

The laboratory has three facilities,

- 1) Energy dispersive XRF (EDXRF) for alloys, soil, plants, gems, archaeological samples etc.
- 2) Total internal reflection XRF (TXRF) for Water samples, bio medical samples and heavy metal contamination
- 3) Portable XRF for in-situ measurements and non-destructive tests for large objects such as archeological samples, toys and machinery.



TXRF analysis

Advantages of XRF Technique

1. A Non-destructive technique
2. Multi elemental Analytical technique
3. Low cost
4. Minimum analytical time

Our Services

Carried out for commercial and R&D purposes and required comprehensive reports and certificates issued.

- Soil samples, Vegetation samples, Food items. Air Particulate Matter (APM) for environmental monitoring.



Filters for APM analysis

- Archaeological items such as metal artifact, statues, coins and replicas for composition analysis and authentication of originality.



- Minerals and rocks, gems and gold/silver items of suspicious composition.
- Imported and exported industrial items, metal items.
- Analysis of industrial settings and metal structures with in-situ analysis portable XRF, and corrosion study.



XRF system with sample holder



Portable XRF system



TXRF system

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**Sri Lanka Atomic Energy Board
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Life Sciences Division

Nuclear Analytical Techniques

***X-Ray Fluorescence (XRF)
Elemental Analysis***

