

X-Ray Fluorescence

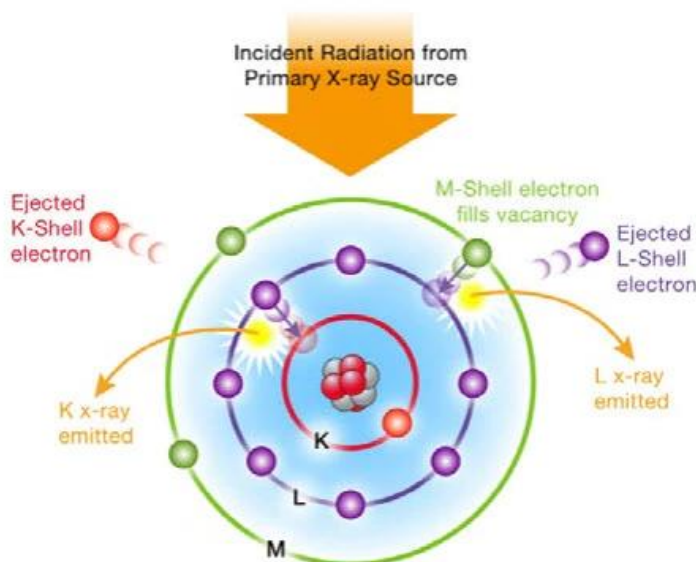
Principle:

XRF (X-ray fluorescence) is an analytical technique used to determine the elemental composition of materials. It is a mobile unit and can be used on-site.

XRF is a non-destructive technique which determines the chemistry of a sample based on the fluorescent X-ray emitted from a sample when it's excited by a primary X-ray source. The fluorescent X-rays of elements found in the sample can then be compared to a database to determine the composition of the material. This makes XRF an excellent choice for qualitative and quantitative analysis of material composition.

Process:

- A controlled X Ray tube irradiates a sample of solid or liquid with high energy X rays
- Contact of the high energy X rays with the sample causes dislodgement of one electron in the inner orbital shell of an atom.
- This empty place in the inner orbital shell is replaced by an electron from the higher energy orbital shells which stabilises the atom.
- The electron drops to the lower level which releases fluorescent X rays. The energy of this X-ray is equal to the specific difference in energy between two quantum states of the electron.





Instrument Description

Sub Folder: Spectroscopy

Current Model:

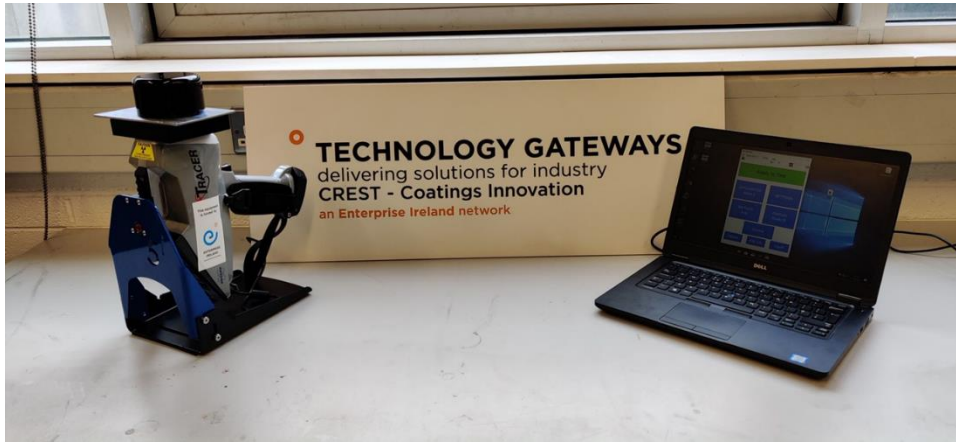


Figure: Bruker CTX Handheld XRF

Video Link: <https://www.youtube.com/watch?v=cAKcOyrt5Vc>

Typical Samples:

There is very little sample preparation required for XRF analysis. The XRF can be used to determine the chemical composition of Metal alloys, Precious and exotic metals, Plastic, Soil, Ore, Ceramic, Paint, Paper, Mineral Assay

Standards:

The XRF has an elemental library included in its software. Samples can be assessed and compared to the internal library or new standards can be built as per customer requirements.

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