

X-RAY DIFFRACTOMETER



Make	Model
Philips, Holland	Xpert MPD

Small Description:

XRD Diffractometer (powder) Philips Xpert MPD Range (2 θ): 3° to 136°; X-ray tube: Cu; JCPDF database; Thin film attachment, 2 θ vs intensity plots/X-ray diffractograms; search match facility with JCPDF data for qualitative analysis.

- ❖ X'PERT MPD is specifically designed for powder diffractometry.
- ❖ X-ray Diffractometers that are commonly referred as XRD are quite useful for study of crystalline nature of materials.
- ❖ X-Ray analysis technique is a non-destructive testing method
- ❖ Useful instrument for research work and analysis of various types of materials like Powder Analysis, Texture Analysis, Stress Analysis, High Resolution Analysis.
- ❖ Application fields are Iron & steel, non-ferrous metals, ceramics, Cement, glass, catalysts, electrical parts, electronics materials, magnetic materials superconductive materials, textiles, foodstuffs, dyestuffs, cosmetics, paints dentures.

Specifications:

- ❖ Source: Cu target X-Ray tube
- ❖ X-Ray Power: 2KW
- ❖ Detector: Xe-filled Counterate or Proportional detector
- ❖ Software: JCPDF database for powder diffractometry
- ❖ Goniometer
- ❖ Operation Modes: Vertical & Horizontal
- ❖ Accuracy: ± 0.0025
- ❖ $2^\circ \theta$ Measurement range: 3° to 136°
- ❖ Diffractometer radius: 130 to 230 mm

Applications:

X-ray diffraction is widely used to identify crystalline phases, measure crystallite sizes, lattice parameters, orientation and provide quantitative phase analysis and atomic coordinates. This information is important for relating the production of a material to its structure and hence its properties. As well as being of academic interest, X-ray results are used in patent disputes, forensically and for quality control.

Compound Identification areas:

- ❖ Inorganic Materials
- ❖ Organic Materials
- ❖ Minerals
- ❖ Metal + Alloys
- ❖ Forensic Material
- ❖ Zeolites
- ❖ Explosive Materials
- ❖ Super conducting Material
- ❖ Cement Materials
- ❖ Correction Product
- ❖ Polymer Material
- ❖ Detergent Product
- ❖ Pigments
- ❖ Pharmaceutical Product
- ❖ Ceramic Materials
- ❖ Kidney Stones