Multiple Purpose Diffractometer (MPD)

X-ray diffraction (XRD) is a versatile, non-destructive technique that reveals detailed information about the chemical composition and crystallographic structure of natural and manufactured materials.

System Overview

X-ray Tube
- Cu tube (12mm x 0.4mm) fitted within the tube shield.

X-ray Optics
- Primary optics are inclusive of:
  - Soller Slit, Width Mask,
  - Filter, Fixed divergence Slit , etc.
- Secondary optics includes:
  - Soller slits, collimators

Detector
- X’celerator proportional detector, which the detection limits for minority phases are considerable reduced.

Softwares
- X’Pert Data Collector and Viewer,
- X’Pert HighScore &
- X’Pert Reflectivity.

Features
- Ultrafast data collection through RTMS (Real Time Multiple Strip) detection technology: a high quality powder diffractogram is obtained in short duration.
- No-compromise resolution for powders and other polycrystalline materials: the large reduction in data collection time can of course also be used to increase the resolution of the diffractogram.
- Compact PreFIX module: the X’Celerator follows the same philosophy as all our other PreFIX modules. It is easily exchanged for another optical module - without alignment.

Applications
- Phase analysis and determination
- Refinement/determination of crystal structures by Rietveld analysis
- Residual stress measurements.

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