UMF Equipment – X-ray Diffractometer

Rigaku SmartLab 9kW, SmartLab 9kW – Advance and SmartLab SE-PDF

XRD is a non-destructive technique to obtain the structure of materials at atomic or molecular level. A finely focused monochromatic beam of X-ray is directed towards the sample under test and the high-resolution interference patterns is measured. By measuring the scattered intensity as a function of diffraction angles in three dimensional space, the diffraction pattern provides information such as atomic structures, lattice parameter and chemical bonds. Applications of XRD include phase determination, crystallography, pharmaceutical research, semiconductor defects, strain, stress analysis, etc. Materials studies varies from salts, metals, minerals, semiconductors thin films, organic, inorganic, nanomaterials, biological molecules, etc.

Features:

- 9 kW high power X-ray generator
- Scintillation counter, 1D high speed detector and 2D multidimensional semiconductor detector
- Temperature dependent measurement from 100 to 850 K
- Micro-area X-ray diffraction measurements (X-ray spot size down to 300um diameter)
- Automatic 8 position powder sample changer with spinner
- Applications of qualitative and quantitative analysis by XRD:
    - Phase identification
    - Quantitative analysis
    - Crystal structure determination
    - Pair distribution function analysis
    - Small angle X-ray scattering
    - X-ray reflectometry
    - Reciprocal space mapping
    - Residual stress
    - Pole figures

Please refer to supplier information page for further information of the system:
https://www.rigaku.com/en/products/xrd/smartlab
For inquiry, please contact Dr. Hardy Lui (Tel: 2766 7791; Email: hardy.lui@polyu.edu.hk).


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