

UMF Equipment – X-ray Diffractometer

Rigaku SmartLab SE-3kW

The Rigaku SmartLab SE-3kW is an ideal tool for pair distribution function (PDF) analysis, which is crucial for the structural characterization of materials. PDF analysis is key to studying the short, medium, or long-range order of materials. It can be used to investigate deviations in the short-range order from the average crystal structure in crystalline materials. In the pharmaceutical industry, PDF is also used as a fingerprint for amorphous materials.

The Rigaku SmartLab SE-3kW features a high-radiation and short-wavelength source, making it ideal for obtaining the desired spatial resolution for local atomic structure analysis. Such high-quality X-ray beams and measurement systems are highly desirable for pre-screening samples in research laboratories before conducting large-scale facility measurements, such as those using synchrotron radiation sources. Other applications in solid-state materials research include the study of oxide fuel cells, magnetic materials, and lithium battery materials.

Features:

- Sealed X-ray tube source: Mo or Ag
- High count rate 1D silicon strip high energy X-ray detector (D/tex Ultra 250-HE)
- Capillary option equipped high-temperature heating stage heating up to 1200°C (Anton Paar HTK 1200N)
- Elliptic multilayer mirror (CBO-E) converges the beam on the detection surface
- Capillary spin attachment head with rotation (1 to 120 rpm)
- Laminated cell attachment head for transmission method measurement

Please refer to supplier information page for further details of the system:

<https://www.rigaku.com/products/xrd/smartlab-se>

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