X-ray diffractometer *MiniFlex*

Category

Materials characterization

Manufacturer and model

Rigaku – MiniFlex 600

Specifications

X-ray source:

- Anode – Cu, $K\alpha$
- Maximum power - $600\ W$
- Tube voltage - $40\ kV$
- Tube current - $15\ mA$
- Rotary shutter linked to interlock

Optics:

- Divergence slit – fixed or variable
- Scattering slit – fixed
- Receiving slit – fixed
- Filter – $K\beta$ foil
- Monochromator (optional) – graphite
- Soller slit - $5.0°$ or $2.5°$

Goniometer:

- Type – vertical
- Radius - $150\ mm$
- Scanning range (2θ) – from $-3°$ to $145°$
- Scanning speed (2θ) – from $0.01°/min$ to $100°/min$
- Minimum step width (2θ) – $0.005°$
- Accuracy - $\pm 0.02°$

Detector:

- Scintillation counter - NaI scintillator
- *D/teX Ultra* (optional) – high speed silicon strip detector

Applications and capabilities

MiniFlex benchtop X-ray diffractometer is a multipurpose powder diffraction instrument that can be used for:

- Phase identification
- Phase quantification
- Percent (%) crystallinity
- Crystallite size and strain
- Lattice parameter refinement
- Rietveld refinement
- Molecular structure

This compact diffractometer offers fast measurements while ensuring high enough quality for further analysis.

Measurements can be carried out on powder samples as well as larger objects with minimal size $\approx 1\ cm^2$ and a flat plane (cutting and polishing partly available).

PDF-4 database is available on the tool. It contains more than 426000 entries and combines the world's largest sources of inorganic diffraction data from crystals and powders into a single database.