

X-ray diffractometer SmartLab 9kW



Technical description:

Description

Rigaku SmartLab X-ray powder diffractometer with rotating Cu anode with a power of 9 kW.

The device is equipped with a precise theta-theta goniometer, adjusted by a computer control system.

Technical parameters:

maximum useful power of the X-ray tube - 9kW
maximum lamp voltage - 45kV
maximum lamp current - 200mA
a theta-theta goniometer with a radius of 30 cm
Bragg-Brentano and parallel optics
slits set by computer control system
measuring range - $0.5 \div 156^\circ 2\theta$
Equipment:
SC scintillation and D/tex Ultra strip detectors
monochromators suitable for the type of detectors for CuK α radiation
HTK 1200 high-temperature camera
camera with variable, stabilized CHC humidity
milli-area diffraction system
SAXS low-angle scattering measurement system
automatic sample changer
special holder for preparations of clay samples

Trade name: X-ray diffractometer Rigaku SmartLab 9kW

More details: </equipment/dyfraktometr-rentgenowski-2/>

Access type: External

Type of accreditation / certificate: Not applicable

Contact person: Bajda Tomasz

Contact person url: <https://skos.agh.edu.pl/osoba/tomasz-bajda-5644.html>

Responsible body: Wydziałowe Laboratorium Badań Fazowych, Strukturalnych, Teksturalnych i Geochemicznych

Group / laboratory / team: The Faculty Laboratory for Phase, Structural, Textural and Geochemical Studies

Last update date: June 10, 2023, 11:02 p.m.

Year of commissioning: 2012

IDUB research areas:

(PRA 5) Materials, technologies, and processes inspired by nature: biotechnology, bioinspirations in engineering and materials science, biosensors, bioenergetics, biocatalysis, biocomputers, and biocomputation

(PRA 7) Design, production, and testing of modern materials and the technologies of the future based on a multidisciplinary approach combining materials engineering with chemistry, physics, mathematics, and medicine

Research capabilities:

X-ray qualitative and quantitative analysis

analysis of clay minerals with a mixed-layer structure

determination of the size of crystallites, structure ordering indicators, unit cell parameters

identification of poorly crystalline minerals by DXRD differential X-ray diffraction

determination of the mass absorption coefficients using the direct method

the structure refinement of crystalline phases

Measurement capabilities:

X-ray registration of powder sample made using the following methods top, back and side loading

X-ray registration of solid flat, suspensions, liquids:

in step by step and continuous mode

in a vacuum and in the environment of various gases

at various temperatures up to 1200°C

at different relative humidity

saturated with various types of liquids

Conditions for providing infrastructure:

- according to the regulations listed on the laboratory's website: <http://wydzlab.agh.edu.pl/wp-content/uploads/2020/11/Regulamin-WLBFSTiG.pdf> -

scientific and research cooperation with AGH units and other domestic and foreign scientific units - cooperation within the projects of NCN, NCBiR, cooperation with industry and under contracts