



X-ray and particles

Delivering quality X-ray diffraction and fluorescence

QUT's Central Analytical Research Facility includes a purpose built X-ray and particles laboratory with specialist technicians and cutting-edge instrumentation that allows for advanced X-ray diffraction and X-ray fluorescence analysis.

Diverse technical capabilities

The laboratory uses X-rays to study how atoms are organised in crystalline materials, and to determine elemental concentrations in fused glass, powdered or thin film samples. We can characterise synthetic and natural materials including metal alloys, polymers, geological specimens and bio materials.

Our expertise

- Crystallite size and microstrain
- Residual stress
- In-situ reaction analysis
- Elemental analysis using x-ray spectrometry
- Thermal properties analysis
- Quantitative phase analysis (including crystal quartz)
- Clay identification

Our services

- Phase characterisation
- Elemental characterisation
- Density analysis
- Thermal analysis
- Gas/vacuum in-situ analysis
- Sample preparation
- Respirable fine fraction

Advanced diffraction services

We are able to access advanced instrumentation facilities including beamline capabilities at the Australian Nuclear Science and Technology Organisation (ANSTO) and Australian Synchrotron. This means we can also use neutrons to analyse your samples.

Australian Synchrotron 

Turning bright ideas into brilliant outcomes

We also connect with beamlines around the world, including the Oak Ridge National Laboratory and National Institute of Standards and Technology (NIST) based in the United States.



Specialist equipment

The laboratory houses powder X-ray diffractometers (PXRD), a single crystal X-ray diffractometer, X-ray fluorescence (XRF) spectrometers and associated sample preparation equipment.

Sample preparation

We are able to analyse a wide range of samples including rocks, soil, metal, powders and nanomaterials. We provide advice on sample preparation, including crushing, grinding, milling and geochemical preparation. We have a specialist geological sample preparation facility at our Banyo Pilot Plant with advanced capabilities in producing high quality thin sections in a range of sizes.

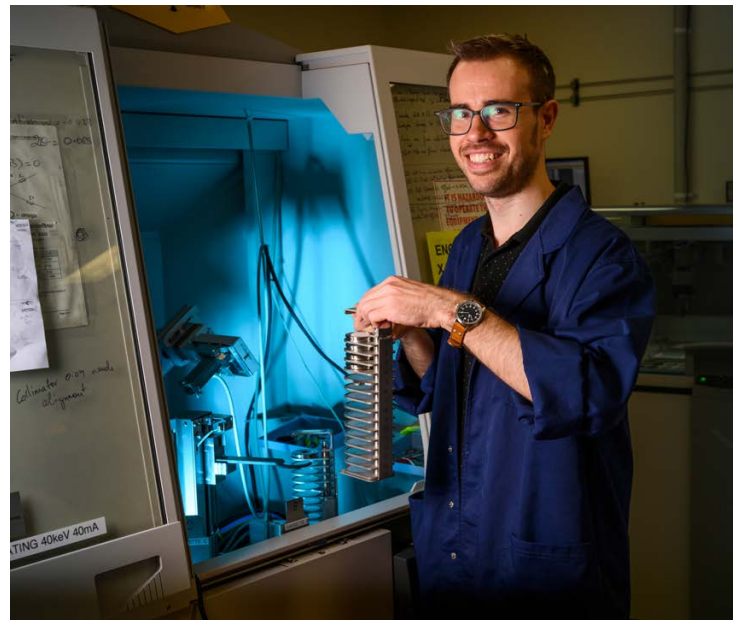
Commercial services

We are the only laboratory in Queensland that provides a full X-ray diffraction analysis service, including clay characterisation, on a commercial basis. We offer quality data analysis customised to your needs and expert personalised service. We will meet with you to discuss the problem you are trying to solve, the type of information you need, your timeframes, whether you need results interpreted and what format you need the results in. We provide a costed proposal for your approval before commencing any work.

Research applications

QUT's technical expertise and world class equipment caters to a wide range of research needs in the physical and health sciences - in areas including materials science and engineering, nanotechnology and geoscience. Opportunities also exist for research related to health, pharmaceuticals, occupational hygiene, and battery development.

We assist students and researchers to obtain timely and accurate results from their experiments. Specialist staff are available to carry out work, or qualified users may apply to access equipment.



Hear from a client

"I've used QUT's X-Ray and particles lab services for several years and found the quality of their scientific work and service to be excellent. They have analysed over 200 samples by QXRD as well as PSD and SEM/EDS from time to time. The staff are good at communicating and their reports are very professional. They are willing to discuss our particular needs for analysis and can provide either an extensive report or just the raw data. We highly recommend QUT for QXRD, PSD and SEM/EDS analyses."

Laurie Glossop B.Sc Ph.D COH FAIOH, Senior Occupational Hygienist and Principal Consultant, Glossop Consultancy

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