



# ENVIRONMENT

**THE AUSTRALIAN SYNCHROTRON: YOUR PARTNER  
IN PROBLEM-SOLVING AND INNOVATION**

*'Using the Australian Synchrotron allowed us to assess the human health risk from contaminated soil, informing a more effective approach for our environmental rehabilitation program.'*

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## WORLD-CLASS RESEARCH SOLUTIONS

The Australian Synchrotron empowers industry to problem-solve and innovate, revealing how matter fits together, moves, interacts and changes, in a way that outshines what can be achieved in any conventional laboratory.

We partner with industry to achieve world-class breakthroughs in areas as diverse as supporting the development of effective treatments for Alzheimer's disease and reducing impacts of environmentally intensive practices, to boosting the nutritional value of food and gaining new insight into the efficient storage and transport of energy.

Our experts harness light, a million times brighter than the sun, to examine and analyse the structure and behaviour of samples in unprecedented detail, with precision, accuracy and speed not available elsewhere, helping industry partners to interrupt, boost and manipulate the most basic of processes to overcome technical hurdles and roadblocks and drive product innovation.

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## WE PROVIDE A RANGE OF HIGHLY SPECIALISED AND UNIQUE SERVICES IN ENVIRONMENTAL RESEARCH

### ENVIRONMENTAL MONITORING:

- analysing environmental conditions
- monitoring soil for the presence and chemical state of pollutants such as arsenic, lead, uranium, antimony, chromium, nickel, and harmful organics or airborne dust particles in areas potentially affected by coal.

### WASTE MANAGEMENT:

- analysing toxic and heavy metals in existing waste, and compounds in mine tailings and waste-water retention ponds
- studying gas separation and sequestration minerals and materials such as membranes, metal-organic frameworks (MOFs) and molecular sieves
- characterising and analysing environmentally-friendly, recycled products.

## WHAT OUR CLIENTS SAY ABOUT US

*'Using the Australian Synchrotron we gained insight into the spectra of minerals and chemicals that exist as a mix within a tailings sample.'*

*'Quickly and accurately pinpointing which lead chemical forms are present, and their relative concentration, allowed us to assess the human health risk from contaminated soil, informing a more effective approach to site-specific soil contamination guidelines for our environmental rehabilitation program.'*

*Dr Barry Noller, Principal Research Fellow, Centre for Mined Land Rehabilitation, University of Queensland*



## REMEDIATION:

- understanding the chemistry of metals and heavier elements in soils, sediments, water and wetlands to control contaminant mobility and manage toxicity and bioavailability
- analysing contaminants in ground water and studying soil compositions to characterise natural weathering processes.

## WE PROVIDE FULLY-SUPPORTED ANALYTICAL SERVICES BEFORE, DURING AND AFTER YOUR EXPERIMENTS, INCLUDING:

- identifying and tailoring effective synchrotron techniques for your sample to expedite detailed analysis
- delivering fast data acquisition from your sample, in unprecedented detail
- supporting timely data analysis and reporting.




For further information on how the Australian Synchrotron can help you problem-solve and innovate, contact:

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