



AIA LABORATORY

Advanced Industrial Analytics

Located near Melbourne at Federation University Australia's Gippsland campus, our Advanced Industrial Analytic Laboratories have recently had a major upgrade in analytical capability and diagnostic equipment.

Our Gippsland Campus has a long history of assisting local industries with technical problems. New capabilities have enabled the AIA's expansion into clean and new energy technology, and provision of analytical chemistry based research and investigative solutions to any industrial, environmental or agribusiness problem.



ICP MS including GC interface for speciation

Capabilities

We provide research, analytics and reports to improve your asset management and maintenance investment strategies, improve product performance and quality or determine your risk level or reduce risk in relation to the ecological soundness of your environmental emissions and discharges. Our laboratory analysis can be offered on a project basis or provide on-going support to your in-house capability.

Our Industry Partners

We have a strong collaboration with the Energy Flagship Low Emissions Technology group. Through this collaboration, we have also worked with the Netherlands Organisation for Applied Scientific Research (TNO).

Our partnership with Commonwealth research organisations provides them with access to specialised analytical skills, research students and well-equipped and licensed laboratories. FedUni also benefits from these connections by gaining access to cutting-edge lab research, pilot technology, development expertise, and industry and international collaboration.

Our Clients

Clients include manufacturers, mining, energy and utility businesses, food production, agriculture, dairy, forestry, local councils and air quality control companies. We are currently investigating upgrading coal based liquid fertiliser products for Omnia Specialties (Pty Ltd). This continues our long association with local industries in value adding to coal products.

Compliance

We are customer focussed with over 40 years' experience in the field. Our procedures comply with official methodologies including those of the US EPA and we are able to coordinate and arrange NATA testing.

Specialisations

While the Advanced Industrial Analytics laboratory can undertake standard matrices and analytics, we specialise in the following:

- » SEM with elemental analysis capability affords new insights into solids
- » Identification of unknowns
- » Speciation and identification of the form of the element
- » Odour impact
- » Multiphase reactive targets (e.g. amines)
- » Chromatographic and spectroscopic analytics
- » High toxicity samples
- » Trace analysis for known targets
- » High-level tailored analytical support for carbon capture and coal projects
- » Reverse engineering and product comparison
- » Process by-product streams, deposits, emissions and odours



Recent Grants and Awards

The CCTC have been recently awarded (April 2015) a Victorian government grant to investigate upgrading coal based liquid fertiliser products for Omnia Specialities (Pty Ltd). This continues our long association with local industries in value adding to coal products.

“Research with real-world applications” Mai Bui

High sensitivity GC QQQ MS



Multi detector Bio-inert HPLC

High resolution QTOF MS

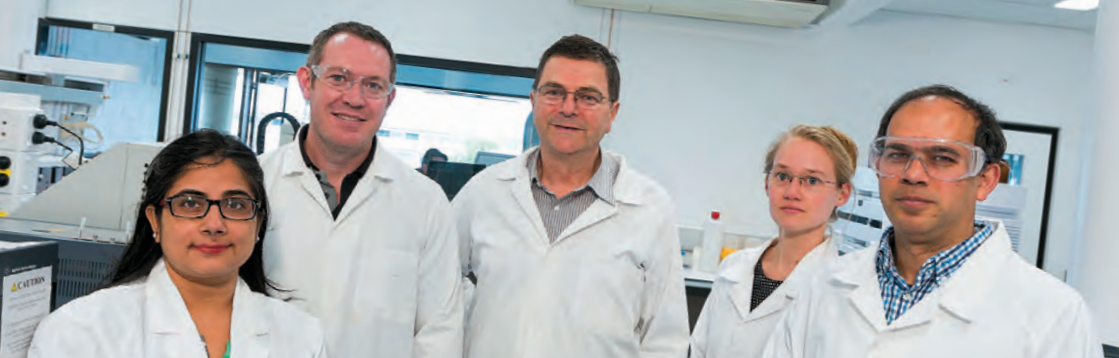
Projects Undertaken

- » Process water characterisation from a coal HTD plant
- » Identify composition of spots in paper
- » Milk factory waste water particulates characterisation
- » VOC analysis of sealants as part of an OH&S assessment in communications cabling
- » Co-mingled municipal waste to biochar – characterisation of chemical changes with production temperature
- » Pilot / demonstration plant support
- » Minerals and energy – coal to products, biomass, gas, fuels,
- » Develop method for the analysis of chemical tag compounds used to monitor the electrical generator core associated with 500MW turbine
- » Evaluate emissions associated with drying options for brown coal throughout the production lifecycle
- » Coal derived fuels – analysis of trace oxygen and sulphur species
- » Trace gas analysis of stack samples
- » Condensates and tars from biomass pyrolysis – target compound analysis
- » Pulp and paper – taints and odours, foreign inclusions
- » Environmental – pollutants characterisation
- » Waste water – specialise in industrial process waters

Benefits to Clients

Our approach ensures our clients receive:

- » Research-based testing to deliver credible and useful results
- » Close communication with the client – ensures there are no surprises and optimises value
- » Advice on sampling, shipping and best analytical methodology for your project
- » Two-way communication through reporting, problem-solving and face-to-face meetings
- » Compliance with industry standards and specifications
- » Access to state-of-the-art industry facilities
- » Facilitation of NATA testing
- » Innovative solutions for improving performance, quality, and risk management of your business and operations



Our People

The team includes internationally recognised experts in Professor Clifford Jones and Dr Vincent Verheyen who have, and continue to contribute to, technical books and international journals.

Dr Vincent Verheyen PhD, University of Melbourne

Vincent has a long history in working within the brown coal space having undertaken research with Herman Research Laboratories and the CCV before commencing at Monash University and now Federation University Australia.



Contact us

To learn more about our Advance Industrial Analytics services and how you can access these contact the laboratory's office. Our team will work with you to identify your needs and ensure we find the right solution for you and your organisation. Contact:

Vincent Verheyen, Laboratory Director

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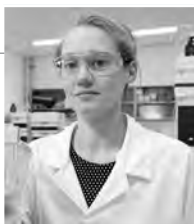
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Dr Alicia Reynolds PhD, Monash University

Alicia specialises in analytical method development involving hybrid chromatographic and spectroscopic techniques.



Emily Scholes

Emily is an operations expert with over ten years experience in providing analytical assistance to industry. Emily has experience with a wide range of advanced wastewater treatment techniques using both biological and membrane technologies. She has also provided support for resource and energy recovery projects utilising anaerobic digestion. Emily is currently undertaking a PhD investigating the MBR treatment of pulp and paper wastewater.



Location

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