# Position Details

## Research Scientist/Engineer- CSOF5

|  |  |
| --- | --- |
| The following information is for applicants | |
| Advertised Job Title | Electrochemist/Electrochemical Research Engineer |
| Job Reference | 96525 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$110,038 – AU$119,080 per annum (pro-rata for part-time) plus up to 15.4% superannuation |
| Location(s) | Melbourne (Clayton), VIC |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian or New Zealand Citizens * Australian Permanent Residents * Australian Temporary Residents, currently residing in Australia, with an existing valid visa and unrestricted work rights for the duration of the term (at least until August 2027) and **no requirement for visa sponsorship**. (Please note this does not include bridging visas or other visas that are dependent upon the approval of future visas). |
| Position reports to the | Team Leader, Electrolysis |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Dr Bita Bayatsarmadi via email at [bita.bayatsarmadi@csiro.au](mailto:bita.bayatsarmadi@csiro.au) or phone +61 3 9545 8135 |
| How to apply | Apply online at <https://jobs.csiro.au/>  Internal applicants please apply via **Jobs Central**  If you experience difficulties when applying, please email [careers.online@csiro.au](mailto:careers.online@csiro.au) or call 1300 984 220. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

**Child Safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

### Role Overview

The role of Research Scientist/Engineer staff is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. They may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. They will also have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts.

In recent years, the Electrolysis team in CSIRO Mineral Resources has been developing an electrochemical flow cell to improve electrochemical processing. This platform technology has wide range of application and is currently being explored for hydrogen production, storage and transport. Hydrogen has attracted considerable attention in the last two decades because of rising energy cost and the expected increased global demand. It is considered an important energy source of the future. However, it is difficult to generate and store in a commercially sensible manner thus development of new energy technologies that are safe, sustainable and environmentally responsible but also have a short technology development timescale are highly desirable.

The Electrochemist/Electrochemical Research Engineer in this role will require multi-disciplinary skills (electrochemistry, analytical chemistry and materials chemistry) to conduct cutting-edge research to optimise the proprietary electrochemical technology for hydrogen applications. They will work as part of a multi-disciplinary team comprised of electrochemists, synthetic chemists, modellers and engineers to help with projects delivery. Furthermore, there will also be a commercial focus, working with a client to ensure delivery of a commercially acceptable technology.

### Duties and Key Result Areas

* Under the direction of senior research scientists, carry out innovative and impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific and commercial outcomes.
* Work within the Electrolysis Team and contribute to the electrocatalytic hydrogen production and storage projects. Tasks will include:
  + Contribute to the modification, redesign and fabrication of the CSIRO electrochemical flow cell.
  + Assist with the characterisation and evaluation of new electrochemical cell designs.
  + Use techniques to measure and validate electrochemical cell performance.
  + Suggest and evaluate worthwhile catalyst materials for alkaline water electrolysis and electrochemical hydrogenation/dehydrogenation of liquid organic hydrogen carriers.
* Carry out tasks in a timely manner under limited direction in support of scientific research.
* Participate in project planning, experimental design, scheduling and completion of project tasks.
* Provide critical feedback on all aspects of the project in order to improve outcomes.
* Contribute to the development of innovative concepts and ideas for further research.
* Contribute to the preparation of high-quality scientific papers for publication in high quality journals, conference papers, client reports and any patents arising from the research.
* Undertake regular reviews of relevant literature and patents.
* Contribute to the effective functioning of the Electrolysis Team and the project team and help deliver CSIRO’s organisational objectives and plans.
* Undertake appropriate training and development programs developed by CSIRO.
* Liaise with clients to determine their needs and take personal responsibility for client satisfaction.
* Under limited direction, assist in the planning and preparation of research proposals and carry out research investigations, requiring originality, creativity and innovation.
* Address problems promptly and in a constructive manner, selecting the most profitable lines of attack upon a problem, preparing detailed design proposals and experimental protocols.
* Undertake experimental and/or observational research activities, often requiring the supervision and/or training of others to ensure experiments are established in accordance with research design, or as required.
* Draw on professional expertise, knowledge of other disciplines and research experience, recognise opportunities for innovation and generate new theoretical perspectives by pursuing new ideas/approaches and networking with scientific colleagues across a range of disciplines.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Work collaboratively as part of a multi-disciplinary, often regionally dispersed research team, and business unit to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A PhD, or an equivalent combination of qualifications and practical work experience, in a relevant discipline area such as electrochemistry, electroanalytical chemistry, electrochemical or chemical engineering, electrometallurgy or material chemistry.
2. Sound knowledge of electrochemical science and technology, including its practice in a research environment.
3. A good working knowledge of material requirements for electrochemical applications, such as hydrogen production and storage.
4. Experience undertaking complex electrochemical measurements, experimental design, data analysis, and the resolution of difficult problems where the recorded data may be ambiguous.
5. Ability to work effectively as part of a multi-disciplinary research team, plus the motivation and discipline to carry out autonomous research.
6. Evidence of strong oral and written communication skills, including a proven record of writing scientific journal papers, technical reports, reviewing literature, preparing presentation materials for meetings, conferences, and workshops.

## **Desirable**

1. Skills in the design of electrochemical cells.
2. Skills in modelling electrochemical data and processes (e.g. computational fluid dynamics (CFD), density functional theory (DFT) modelling skills).
3. Understanding of a variety of non-electrochemical techniques that help solve electrochemical problems (e.g. SEM, XRD, NMR, synchrotron-based measurements, UV absorption spectroscopy etc)
4. A practical understanding of the role commercial imperatives place on innovation.
5. A record of science innovation and creativity, plus the ability and willingness to incorporate novel ideas and approaches into scientific investigations.

## **Required Competencies**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others’ reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate responses by adapting/creating and testing alternative solutions.
* **Independence:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of change.

Special Requirements

Appointment to this role is subject to provision of a pre-employment background check and may be subject to other security/medical/character clearance requirements.

* The successful candidate will undertake a pre-employment background check. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [Mineral Resources](https://www.csiro.au/en/about/people/business-units/mineral-resources) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted