# Position Description

## Research Scientist/Engineer – CSOF5

The following information is for applicants

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| Advertised Job Title**:** | Research Scientist/Engineer – Non-Ferrous Extractive Metallurgy |
| Job Reference: | 60696 |
| Relocation Assistance**:** | Will be provided to the successful candidate if required. |
| Applications Are Open To: | Australian Citizens Only  Australian/New Zealand Citizens and Australian Permanent Residents Only   * All Candidates |
| Percentage of Client Focus - Internal: | 50% |
| Percentage of Client Focus - External: | 50% |
| Reports to the: | Research Team Leader – Functional Powders |
| Number of Direct Reports: | 0 |
| Name and Contact Details For Applicant Enquiries | Dr Adrian Trinchi (+61 3 9545 2747), Dr Shirley Shen (+61 3 9545 2928) |
| Contact Details For Applying | Call 1300 984 220 or email [careers.online@csiro.au](mailto:careers.online@csiro.au). |
| How to Apply: | Please apply online at [jobs.csiro.au](https://jobs.csiro.au/) and enter the requisition number**.** Internal applicants please apply via ‘Jobs Central’ through the ‘People Hub’ icon |

## Role Overview:

The role of Research Scientist Staff in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. You may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. You will 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.

## The Research Scientist/Engineer – Non-Ferrous Extractive Metallurgy will join CSIRO’s Metal Industries Program and will take a leading role in the development of novel pathways for the production of high-value metal powders and their integration into downstream manufacturing processes. The position will focus on extractive metallurgy and reduction thermodynamics of titanium, scandium, lithium, vanadium, and/or other high-value materials of strategic relevance to Australia’s Advanced Manufacturing sector and its global impact. The successful applicant will design, undertake, analyse, and interpret experiments and data from fundamental thermodynamics to demonstration-scale equipment. The incumbent will work with a wide range of CSIRO staff and external partners creating the industries and technologies of the future.

## CSIRO’s Metal Industries Program is part of the Manufacturing Business Unit. The program undertakes applied research in advanced metallic manufacturing across the advanced metals value chain - from 'powder to product'. We develop novel reduction processes and the direct production of metal powders, and lead research in innovative additive manufacturing, computational modelling, corrosion mechanisms and inhibition, and lithium energy systems. We collaborate to build new global industries and accelerate the uptake of technology into Australia's manufacturing landscape. Our staff connect across the global research and industrial community, particularly in aerospace, defence, energy systems, rail/mining, and medical metals.

## Duties and Key Result Areas:

* Undertake fundamental research and process development of new technologies based on extractive metallurgy and reduction thermodynamics of high value materials.
* Interpret characterisation results from a range of different techniques including ICP-OES, DSC-TGA, LECO, SEM, XRD, and LIBS, and undertake and develop characterisation activities in partnership with analytical staff.
* Design and conduct experiments in metal, metal halide, and metal oxide systems, including multi-phase and multi-material reactive systems.
* Design, undertake, analyse and interpret experiments from fundamental thermodynamics to demonstration-scale equipment.
* 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.
* Present results in a meaningful format, prepare reports for clients and/or write scientific papers for publication.
* Address problems promptly and in a constructive manner, selecting the most appropriate 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 plans and policies, Diversity initiatives and Zero Harm goals.
* Other duties as directed.

## Competencies:

1. **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.**
2. **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.**
3. **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.**
4. **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
5. **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.**
6. **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 changes.

## Selection Criteria:

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

1. A PhD degree (or equivalent research experience) in a relevant discipline such as chemical/materials engineering or inorganic chemistry/thermodynamics coupled with relevant research experience.
2. Demonstrated experience of working with reactive metal halides and powder processing including an understanding of health and safety requirements.
3. Demonstrated ability to use and interpret a range of relevant chemical analysis and characterisation techniques. Examples may include ICP-OES, DSC-TGA, LECO, SEM, XRD, and LIBS.
4. An understanding of the issues involved in process scale-up, including design, safety and control.
5. Demonstrated capacity to lead a project and/or team.
6. Strong written and oral communication skills including the ability to publish research results, prepare reports and present the results of scientific investigations at conferences and/or stakeholder meetings.
7. A record of science innovation and creativity plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## Desirable Criteria:

1. Knowledge of techno-economic modelling, market analysis, and assessment methods for metallurgical process development.
2. Experience working with multi-disciplinary and complementary teams.

## Special Requirements:

Appointment to this role may be subject to conditions including security/national police/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- <https://ielts.com.au/>

## About CSIRO:

We imagine. We collaborate. We innovate. To find out more visit us [online](http://www.csiro.au/)!

Find out more about CSIRO [Manufacturing](https://www.csiro.au/en/Research/MF)