# Position Description

## Research Scientist/Engineer – CSOF5

The following information is for applicants

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| Advertised Job Title**:** | Thermal/Chemical Engineer |
| Job Reference: | 60962 |
| Relocation Assistance**:** | Will be provided to the successful candidate if required. |
| Applications Are Open To: | Australian/New Zealand Citizens and Australian Permanent Residents Only |
| Percentage of Client Focus - Internal: | 20% |
| Percentage of Client Focus - External: | 80% |
| Reports to the: | Research team leader |
| Number of Direct Reports: | 1 |
| Name and Contact Details For Applicant Enquiries | Dr Yonggang Jin  Email: [yonggang.jin@csiro.au](mailto:yonggang.jin@csiro.au)  Telephone: +61 7 3327 4146  *Please do not email your application directly to Dr Yonggang Jin. Applications received via this method may not be considered by the selection panel.* |
| 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 Engineer 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 Thermal/Chemical Engineer will conduct research and development in the areas of mine methane emissions abatement and mine waste treatment. The research aims to reduce greenhouse gas emission and minimize environmental impact. The work will involve use of a combination of disciplines, including combustion, heat transfer, reaction, thermodynamics, and fluid dynamics.

## Duties and Key Result Areas:

* Develop mine methane mitigation and capture technologies.
* Develop new processes and technologies for mine waste treatment.
* 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 profitable lines of attack upon a problem, preparing detailed design proposals and experimental protocols.
* Undertake in 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 in Thermal Engineering/Chemical Engineering or an equivalent field with a minimum of 5 years demonstrated R & D experience.
2. Demonstrated expertise knowledge in combustion, heat transfer, fluid dynamics and thermal dynamics.
3. Engineering skills in designing and setting up laboratory scale rigs and small pilot-scale units including combustor, heat exchanger, furnace. Excellent experience in operating the pilot-scale units.
4. Demonstrated ability to analyse problems and develop appropriate and practical solutions.
5. Well-developed written and oral communication skills.
6. Demonstrated ability to work independently and effectively, and to work cooperatively with others in a team environment, and to liaise at a number of levels from management through to technical staff.
7. Demonstrated leadership and project team management skills to deliver research outcomes on time.
8. A solid track record of publication in quality, peer reviewed journals.

## Desirable Criteria:

1. Experience in using 3D autoCAD for mechanical design.
2. Knowledge in turbo machinery.

## Special Requirements:

Appointment to this role may be subject to conditions including security/national police/medical/character clearance requirements.

To be eligible for this position you must be willing and able to travel to domestic and overseas mine sites for experiments, and to drive a car domestically.

## About CSIRO:

At CSIRO we solve the greatest challenges through innovative science and technology. See more [online](http://www.csiro.au/)!

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