



POSITION DESCRIPTION

Position Title:	Deuteration Facility Chemist
Cluster / Business Unit / Division	Nuclear Science and Technology
Section or Unit:	National Deuteration Facility
Classification:	Band 4
Job Family:	Science
Position Description Number:	PD-0385
Work Contract Type:	Professional
STEMM/NON-STEMM:	STEMM
STEMM CATEGORY:	Research & Sciences

POSITION PURPOSE

The primary objective of the Deuteration Facility Chemist position is to contribute to laboratory operations at the National Deuteration Facility (NDF) at ANSTO by producing molecules labelled with deuterium. This is done using isotopic exchange, synthetic chemistry and biochemistry techniques, followed by purification and characterisation of the deuterated molecules for use at ANSTO and by external users of the NDF. These molecules enable structural investigations using neutron scattering, NMR and other techniques. The role also supports lab operations through day-to-day maintenance and running of the NDF labs.

ORGANISATIONAL ENVIRONMENT

ANSTO leverages great science to deliver big outcomes. We partner with scientists and engineers and apply new technologies to provide real-world benefits. Our work improves human health, saves lives, builds our industries and protects the environment. ANSTO is the home of Australia's most significant landmark and national infrastructure for research. Thousands of scientists from industry and academia benefit from gaining access to state-of-the-art instruments every year.

The National Deuteration Facility (NDF) is Australia's national facility for isotopic labelling of molecules with the stable, non-radioactive isotope deuterium using chemical or biological processes in order to enhance contrast, and reduce background when conducting structural studies using neutron scattering instrument operated by the Australian Centre for Neutron Scattering at the OPAL Reactor, or using spectroscopic techniques such as Nuclear Magnetic Resonance (NMR), Infra-Red (IR) or Mass Spectrometry (MS). The NDF is a world leader in chemical deuteration and equal to the benchmark for Biodeuteration. It is the only facility of its kind in southern hemisphere and has an oversubscribed user program with greater than 100 users per year from 25 institutions benefitting from the NDF's capabilities. The NDF has significant international engagement with institutions in Europe, Asia and the U.S.A.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities

- Contribute to laboratory operation for production and purification of deuterated chemicals to produce deuterated precursors followed by modified traditional synthesis routes.
- Contribute to the characterisation of the deuterated products
- Undertake hydrogen/deuterium exchange reactions and synthesis of molecules from deuterated precursors using established protocols.
- Chromatographic purification of deuterated molecules using established protocols
- Day-to day responsibility for the running of the NDF laboratories including purchasing, maintenance, calibration and other quality and safety functions (area supervisor of the laboratory)
- Contribute to journal and conference publications as appropriate.

- Fulfil WHS responsibilities as specified in AG-2362 of the ANSTO WHS system.
- Undertake additional duties as required and during periods of leave of other staff.

Decision Making

The position holder will be responsible for part of the laboratory work required to produce labelled molecules and in this context will:

- Contribute to design, discuss, and reach agreement with their manager on approaches to the labelling of specific molecules in NDF proposals.
- Determine key work priorities within the context of agreed weekly and monthly work plans and consult with their manager on complex or major technical or methodological issues that have a significant impact on completion of NDF proposals for molecular labelling.
- Be fully accountable for the accuracy and quality of experimental results provided to their colleagues and managers, and ensure that day to day decisions on laboratory work are based on sound evidence which at times may be require to make effective judgements under pressure or in the absence of complete information or expert advice.
- The levels of authority delegated to this position are those approved and issued by the Chief Executive Officer. All delegations will be in line with the ANSTO Delegation Manual AS-1682 (as amended or replaced).

Key Challenges

- Contributing to new capabilities at ANSTO (ie deuteration of small organic molecules) in a teamwork setting.
- Timely achievement of goals in a multi-tasking environment requiring initiative and self-motivation
- Recognising and grasping opportunities to become involved in the science of the facility.
- Learning new techniques in synthetic chemistry and biochemistry, separation/characterisation of molecules.

KEY RELATIONSHIPS

Who	Purpose
Internal	
NDF Leader	<ul style="list-style-type: none"> • Receive guidance and direction • Recommend and gain endorsement for plans and goals and other initiatives. • Report on progress of NDF deuteration proposals
NDF Team members	<ul style="list-style-type: none"> • Contribute to group decision making processes, planning and goals • Collaborate and share accountability • Negotiate and resolve conflicts
Other Scientists in NST	<ul style="list-style-type: none"> • Provision of deuterated molecules for research • Supervision of use of NDF instrument facilities

POSITION DIMENSIONS

Staff Data	
Reporting Line	Reports to the Laboratory Operations Manager
Direct Reports	Nil
Indirect Reports	Nil

Financial Data (2023/2024)

Revenue / Grants	N/A
Operating Budget	N/A
Staffing Budget	N/A
Capital Budget	N/A
Assets	N/A

Special / Physical Requirements

Location:	Lucas Heights / Clayton Working in different areas of designated site/campus as needed
Travel:	N/A
Physical:	Office based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Standing for long periods doing laboratory work Public speaking Wearing personal protective equipment for the handling of hazardous and/or radioactive materials
Radiation areas:	May be required to work in radiation areas under tightly regulated conditions
Hours:	Willingness to work extended and varied hours based on operational requirements
Clearance requirements:	Satisfy ANSTO Security and Medical clearance requirements Obtain and maintain appropriate federal government clearance

Workplace Health & Safety

Specific role/s as specified in <u>AP- 2362</u> of the ANSTO WHS Management System	All Workers Other specialised roles identified within the guideline a position holder may be allocated to in the course of their duties
--	--

ORGANISATIONAL CHART

Refer to published Organisational Chart.

KNOWLEDGE, SKILLS AND EXPERIENCE

1. Degree in Science (Honours) specialising in organic chemistry or other relevant fields of science or equivalent relevant experience.
2. Practical laboratory experience in synthesis, separation or characterisation
3. Willingness to develop competence in synthesis, separation or characterisation
4. Example: Proven experience, leading and managing operational activities and/or type of staff to achieve (what needs to be achieved), desired organisational outcomes and achieving optimal work performance.
5. Willingness to learn deuterium – hydrogen exchange reactions;
6. Demonstrated ability to contribute to journal publications;
7. An ability to keep accurate records and a meticulous approach to execution of research in the laboratory;
8. Proficiency in a Windows computer environment and Microsoft Office;
9. Strong customer focus;
10. Ability and willingness to work in a team environment

VERIFICATION

This section verifies that the line manager and appropriate senior manager/executive confirm that this is a true and accurate reflection of the position.

Line Manager		Delegated Authority	
Name:	Anwen Krause-Heuer	Name:	Tamim Darwish
Title:	Organic Synthetic Chemist	Title:	Leader, National Deuteration Facility
Signature:		Signature:	
Date:	14/11/2023	Date:	14/11/2023

Appendix 1

ANSTO Job Families
Accounting & Finance
Administration
Communications & Marketing
Compliance & Regulation
Engineering and Technical
Human Resources
ICT & Digital Solutions
Information & Knowledge Management
Legal
Manufacturing
Monitoring & Audit
Operations
Organisational Leadership
Project & Program
Research
Science
Security & Intelligence
Senior Executive
Service Delivery
Strategic Policy
Trades & Labour