Procedure: Chemical Management

Purpose
To outline the procedure for managing chemicals at the University.

Definitions

Archived Chemical – a research substance that is stored for more than one week in an amount greater than 1 g or 1 mL. Where appropriate, it should also apply to amounts less than 1g or 1 mL.

Control – anything that is implemented to eliminate or reduce the risk of a hazard.

Emergency Procedures – basic plans, established in advance, stating what action to take in the event of an emergency. These are used in order to minimise the consequences of an incident, such as injuries, or damage to property or the environment.

Exposure – occurs when a person, property or the environment comes into contact with a hazard. The four routes of exposure for people are: inhalation, skin absorption, ingestion and inoculation.

Hazard – anything that has the potential to cause harm (e.g. hydrochloric acid is hazardous because of its corrosive nature and ability to cause burns to living tissues).

Hazardous Chemical – any chemical substance that has the ability to release energy that is harmful to the health or safety of a person or the environment. This definition includes hazardous substances, dangerous goods, and scheduled medicines and poisons.

Health – freedom from illness or disease.

Health Hazard – anything that can cause illness or disease. Exposure may occur over a short or long period of time.

Material Safety Data Sheet – see Safety Data Sheet.

Occupational Health and Safety – freedom from injury, illness and disease in the workplace.

Research Substance – a substance that is a new chemical, or where there is little known about its physical, chemical, toxicological or health-related properties.
Risk – the likelihood that a hazard will cause harm in the given circumstances (e.g. the risk of receiving a burn from hydrochloric acid is low when it is contained in a sealed bottle; however, this risk is significantly higher when handling an acid in an open container).

Safety – freedom from danger of injury.

Safety Data Sheet – a document that is designed to provide the information necessary to store and handle hazardous chemicals safely. These documents are produced by the manufacturer or importer of each hazardous chemical.

Safe Work Methods – a set of instructions designed to communicate definite or standardized procedures to staff. These are used to obtain consistency in results and increase safety and efficiency in the workplace. Also known as Safe Operating Procedures, Protocols etc.

Procedure

Emergency Information

Emergency Chemical Response queries should be initially directed to the local area management, and then the Work Environment Group (x52193). Emergency Services response is coordinated through the local area.

After-hours contact ANU Security (x52249).

Part 1: Introduction

1. This hazard management procedure has been developed by The Australian National University to ensure the safe and reliable management of chemicals within the University. In managing chemicals the University advocates a risk management approach to minimise the risks to staff, students, contractors and visitors in relation to the purchase, storage, handling and disposal of chemical materials associated within the range of research, teaching and operational tasks undertaken within the University.

See: Guideline A for a description of Risk Management.

2. This Procedure covers the following topics:

Part 1: Introduction

Legislative and Regulatory Requirements

- Legislative and Regulatory obligations
- Budget unit responsibilities
• Chemical user responsibilities

Part 2: Managing Chemicals at the ANU

• Approval for chemicals
• Purchasing chemicals
• Registering chemicals
• Labelling chemicals
• Record keeping
• Storage of chemicals
• Using chemicals
• Laboratory design and equipment
• Laboratory practises
• Experimental design
• Disposing of chemicals
• Waste management and disposal
• Part 4: Incident Reporting and Emergency Procedures
• Incident reports
• Emergency procedures
• Training obligations / courses

Part 3: Legislative and Regulatory Requirements

3. This Part covers the following topics:
   • Legislative and regulatory requirements, and
   • Responsibilities.

Legislative and Regulatory Obligations

4. This procedure is governed by ANU following Commonwealth and ACT legislation and regulatory obligations:
   • Work Health and Safety Act 2011
   • Work Health and Safety Regulations 2011
   • Scheduled Carcinogenic Substances.
   • Part 8 – Storage and Handling of Dangerous Goods.
Part 9 – Major Hazard Facilities.


National Industrial Chemicals Notification & Assessment Scheme (NICNAS).


Chemicals of Security Concern.

5. Certain categories of chemicals require regulatory authorisation or permits for their purchase and use, or regulatory notification for their storage. These categories include:

- Scheduled Medicines and Poisons (Schedules 8 & 9) – Authorisation for purchase and use is required from the ACT Department of Health;

  See: [Scheduled Medicines and Poisons (Schedules 8 & 9)]

- Scheduled Medicines and Poisons (Schedules 7) – A scientifically qualified person may undertake research or another authorised activity within the scope of the ACT Medicines and Poisons Regulations with the approval from the institution.

  See: [Scheduled Medicines and Poisons (Schedule 4)]

- Scheduled Medicines and Poisons (Schedule 4) – Authorisation for purchase may be required from a Medical Practitioner, Veterinarian or Scientifically qualified person;

  See: [Scheduled Medicines and Poisons (Schedule 4)]

- Prohibited Carcinogenic Substances – Exemption for bona fide research use is required from the Safety Rehabilitation and Compensation Commission;

  See: [Prohibited Carcinogenic Substances]

- Restricted Carcinogenic Substances – Require a risk assessment approved by the Local Area OHS Committee and input from the Work Environment Group.

  See: [Restricted Carcinogenic Substances]

- Dangerous Goods – Notification to Comcare is required for manifest (large) quantities;

  See: [Notifying Comcare]

- New Chemicals – Notification to the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is required for chemicals that are generated or imported by the University in quantities of more than 100g
that are not currently on the Australian Inventory of Chemical Substances.

See: Details of NICNAS and notification to the Work Environment Group.

See: Australian Inventory of Chemical Substances.

6. Other categories of chemicals that require ANU authorisation and notification include:

- Explosives – WARNING – These are high-risk materials. Work Environment Group must be consulted for advice before manufacturing, obtaining or handling explosive chemicals.

See: Potentially explosive chemicals.

- Radioactive substances – Authorisation and notification information is contained in the ANU Radiation Safety Procedures and users are required to meet the requirements of the Australian Radiation Protection and Nuclear Safety Agency and ANU license requirements.

See: ANU Radiation Safety Procedures.

- Chemicals of Security Concern

See: Chemicals of security Concern and Summary on chemicals of security concern.

7. If in doubt, please contact Work Environment Group.

Responsibilities

8. Budget Unit management responsibilities.

The Director is responsible for:

-Ensuring a risk assessment process/system is implemented for the storage and handling of all chemicals.

-Providing, and maintaining appropriate facilities and resources to ensure a safe and healthy work environment.

-Providing the necessary resources to access information on chemicals.


-Providing the necessary resources to maintain regulatory registers and records.

See: University chemical inventory system.

-Providing the necessary resources to manage and dispose of chemical wastes in an approved manner.
• Ensuring a departure process is implemented including transferring chemical material responsibility and ownership.

The Research Group Leader/Manager is responsible for:

• Undertaking a risk assessment for the storage and handling of all chemicals.
• Managing, documenting and addressing the risks associated with chemical substances. When the risks are considered unacceptable the work shall not be undertaken. Changes to the Chemical Handling Protocol must be made.

See: Chemical Handling Protocol.

• Providing clear and consistent supervision, instruction and training.

See: Chemical safety courses.

• Maintaining regulatory registers and records.

See: University chemical inventory system.

• Ensuring that (at least) annual inspections are conducted to check the integrity of the materials and labels and to update the chemical register.
• Ensuring chemical material responsibility is transferred upon departing the University.
• Managing and disposing of chemical wastes in an approved manner.
• Reporting incidents in the agreed manner.

See: Reporting incidents.

9. Chemical users are responsible for:

• Adhering and contributing to safe operating procedures and guidelines to ensure not only their safety, but also that of fellow staff, students, contractors and visitors, and the environment.
• Using appropriate facilities and resources to ensure a safe and healthy work environment.
• Archiving research substances according to requirements of this procedure and local guidelines.
• Using personal protective equipment in the appropriate manner, as required.

See: University’s procedure on Personal Protective Equipment and Clothing

See: Personal Protective Equipment and Clothing

• Conducting (at least) annual inspections to check the integrity of the
materials and labels and to update the chemical register.

- Participating in the University's health surveillance program in accordance with the University's health surveillance policy and procedure, where relevant.

**See:** University's [health surveillance procedure](#).

- Reporting incidents in the agreed manner.

**See:** [Reporting incidents](#).

- Transferring chemical ownership when departing the University, according to local and University requirements.

**See:** [Transferring chemical ownership](#).

- Assisting in maintaining the University’s chemical inventory system or local area chemical register.

**See:** [University chemical inventory system](#)

### Part 2: Managing Chemicals at the ANU

10. This Part covers the following topics:

- Purchasing
- Registering
- Storing
- Using
- Disposing

#### Purchasing

11. Before purchasing hazardous chemical materials, prospective users must conduct a risk assessment of the chemical(s) and potential uses. Developing appropriate chemical handling procedures should also commence.

**See:** [Guideline A](#) for details on conducting a risk assessment and [Guideline B](#) for a chemical risk assessment. A guide to developing a Chemical Handling Protocol is also available.

12. Research group leaders are responsible for approving hazardous chemical purchases.

13. Prospective users must obtain Safety Data Sheets (SDS, formerly Material Safety Data Sheets) from the manufacturer or supplier when purchasing:

- Unusual or rare chemicals; or
• Proprietary products; or
• Commercial mixtures.

14. Most SDS are also available on the Chemwatch online database system or from the manufacturer/ supplier.


15. The legislation also allows for SDS for hazardous chemicals to be provided by the manufacturer and/or supplier on the first occasion that any hazardous chemical is purchased, and at any time after the purchase of a hazardous chemical, upon request from the purchaser.

16. Some types of chemicals (e.g. Medicines, dangerous poisons) may only be purchased by first obtaining regulatory authorisation.

See: Legislative and Regulatory Requirements.

Registering

17. All Service Divisions, Research Groups, Departments and/or Research Schools shall register on the ANU Chemical Inventory System all hazardous chemicals they purchase or hold. The University also encourages employing the CIS as the user's register for all other chemical items.

See: University chemical inventory system.

18. There are specific registration requirements for Scheduled Medicines and Poisons and Scheduled Carcinogens.

See: Legislative and Regulatory Obligations.

19. The chemical users shall conduct (at least) annual inspections to:

• check the integrity of the chemical's packaging and labels; and
• update the chemical register.

20. If greater than 1 g or 1 mL of a research substance is to be held in the research group or budget unit in an unaltered state for more than one week, it must be included on the relevant register of chemical substances. The substance needs to be:

• in an appropriate container;
• adequately labeled (see below);
• in an appropriate location;
• added to the chemical inventory/register; and
check checked periodically for any deterioration of the substance or its container. See: Safe Work Australia for information on research substances.

21. When the person departs the budget unit the archived research substances must be on the ANU chemical inventory system.

22. The research group leader/manager and chemical users should ensure that the identity, location and condition of all substances in their control BEFORE departing the budget unit are transferred to an appropriate member of the area. Any unwanted, unusable or waste chemicals should be disposed of in an appropriate manner, and all other chemicals relocated to chemical stores or other members of the relevant area. The chemical register for the area shall then be updated. A staff departure checklist may be of assistance. See: University's Disposal of Hazardous Waste procedure. See: Staff departure checklist.

Labelling Hazardous Substances

23. Hazardous substances in any container 500ml or 500g or larger shall be labeled with the following information:

- Product name, chemical name, United Nations Number, ingredients;
- Signal word(s) and hazard ratings, including hazard pictograms;
- Hazard statement(s) and precautionary statement(s) – prevention, storage and disposal;
- Directions for use, first aid procedures and emergency procedures;
- Details of manufacturer or importer; and
- Expiry date (where relevant) and reference to SDS
- ANUCIS identifier (bar code)


24. If the container is smaller than 500ml or 500g, then the bold information (paragraph 23) may be omitted from the label.

See: Hazardous substances label template for small containers. See: Labelling of hazardous substances.

25. If the container is too small to have a label attached, the container can be
placed in an appropriately labelled outer container. Labels containing the required information can also be printed using ChemWatch under user templates.

See: Hazardous substances label template for smaller containers
See: Hazardous substances label template for smallest containers

26. A decanted hazardous chemical must be labelled with the following as a minimum:
   - the product identifier; and
   - hazard pictograms or
   - hazard statements.

See: Hazardous substances label template for decanted substances.
See: Labelling of hazardous substances.

27. Non-hazardous substances must be labeled with the following information:
   - Full chemical name and concentration of constituents (abbreviations and chemical symbols/structures are not adequate);
   - Name of the user and contact number;
   - Date; and
   - Location (School/Section, building, lab number).

See: Non–hazardous substances label template.

Record keeping

28. Chemical risk assessments (or chemical handling protocol) of chemicals must be kept for designated periods. This can be 5 years where the chemical poses no significant risk to human health and 30 years if the chemical poses a significant risk to human health and it involves health surveillance and atmospheric monitoring.

See: Chemical Handling Protocol and designated periods.

29. Records of monitoring and health surveillance must be kept for designated periods (see above).

See: Requirements of health surveillance.

30. There are specific requirements for Scheduled Medicines and Poisons and Scheduled Carcinogens.

See: Scheduled Medicines and Poisons (Schedules 4, 8 & 9) and Scheduled Carcinogenic substances.
31. Budget Unit management must keep a list of persons authorised to obtain and use Schedule 4, 8 and 9 substances.

Storage

32. All chemicals should be stored in appropriate containers and in a location where there are appropriate conditions for the type of chemical and its container. Chemicals must only be stored with other compatible chemicals.

See: Storage of chemicals in appropriate containers.

See: Storage of chemicals and appropriate conditions.

See: Compatible chemicals and Incompatibility of common laboratory chemicals.

33. There are specific storage requirements for:

- Scheduled Medicines and Poisons (Schedules 4, 8 & 9).
- Carcinogenic Substances.
- Certain High–Risk Materials (e.g. Hydrofluoric acid, cyanides and explosives).
- Chemicals of Security Concern

See: Scheduled Medicines and Poisons (Schedules 4, 8 & 9), Carcinogenic Substances and Cyanides.

34. All chemicals stored for more than 1 week are required to be entered onto the local or University chemical inventory system.

See: University chemical inventory system.

Using Chemicals at the ANU

Laboratory Design and Equipment

35. The construction and renovation of laboratory areas at ANU should be in accordance with the relevant Australian Standards and an equivalent or superior standard to that specified in the ANU Laboratory Design and Equipment document.

See: Australian Standards for Laboratory Design and Equipment and ANU Laboratory Design and Equipment standards.

36. Particular consideration should be given to any requirement for fume cupboards or other fume exhaust systems. The installation and use of such exhaust systems should be in accordance with the ANU Fume Exhaust Systems Hazard Management Procedures document.

37. The Work Environment Group is able to provide advice on requirements, and should be briefing and consulted in any significant modifications to laboratory environments.

See: Work Environment Group and ANU OHS Officer.

**Laboratory Practices**

38. The following sections are also relevant to workshops and studios.

39. The following Standard Laboratory Practices apply:

- All activities in laboratories involving chemicals should be conducted in accordance with the ANU's Standard Laboratory Practices document or to an equivalent standard.

See: Standard Laboratory Practices.

- Gas cylinders must be stored and handled according to the ANU Gas Cylinder Practices document and ANU's Hazard Alerts.

See: Gas Cylinder Practices.

- There are many highly hazardous chemicals and activities associated with the use of chemicals. These higher significant-risk (Category C2) and high-risk (Category D) items may require specific knowledge and control measures.

See: Higher significant-risk (Category C2) and high-risk (Category D) chemicals.

- The management of Work Environment Group shall be informed of any higher-risk chemicals and activities that require specific treatments, knowledge or controls so that, if necessary, they may be included in the communications with relevant organisations. The Work Environment Group and the local OH&S committee should be involved in assessing high risk activities.

See: Work Environment Group.

See: ANU OHS Officer.

- The Work Environment Group's Hazard Alerts contain important information about hazards that may not be well known.

- Regular inspection of chemical labels and contents. In case chemical containers have no labels, or labels that have fallen off, the contents, ownership and age of such containers are uncertain. The guidelines below provide a general guide in handling containers of unidentified chemicals. If further advice is required, contact the Work Environment Group.
See: Work Environment Group.
See: Handling of a container of an unknown chemical.

Experimental Design

40. A Chemical Handling Protocol should be prepared for experimental procedures involving laboratory chemicals. Chemical Handling Protocols should incorporate:
   a. the risk assessment, making use of all relevant information, including the SDS;
   b. a determination of appropriate control measures, (either assumed or novel) that reduce risks;
   c. safe work methods;
   d. a waste handling procedure;
   e. an emergency response procedure;
   f. document control information e.g. version control; and
   g. any other relevant information.

41. Experimental procedures should be conducted in accordance with the Research Group leader's approved Chemical Handling Protocol.

42. Safe Work Method Statements (SWMS), Job Safety Analysis (JSA), or Safe Operating Procedures (SOPs) shall be developed for non-laboratory based chemical tasks.

See: Chemical Handling Protocol.

43. Procedures and source information should be reviewed annually.

Disposing of Chemicals

Waste Management and Disposal

44. The generation of waste chemicals should be minimised and wherever practicable chemicals should be recycled.

45. Disposal of many waste materials is covered in the University's Disposal of Hazardous Waste document. Wastes must be collected in suitable labelled containers only with other compatible chemicals.

See: University's Disposal of Hazardous Waste procedure, chemical waste collection in suitable containers and compatible chemicals.
46. Hazardous waste safety officers with specialised knowledge on the disposal of chemicals are located in many areas on campus. If a Hazardous Waste Safety Officer is not able to resolve an issue related to waste chemicals, the issue should be referred to the Work Environment Group. The Hazardous Waste Safety Committee oversees the University's waste chemical processes.


47. Disposal of certain medicines and poisons are required to be disposed of at the end of a research project and some need to be witnessed by an authorised inspector.

See: Disposal of certain medicines and poisons.

48. Dangerous goods (including infectious substances and biological products) must be packaged for transport by Certified Dangerous Goods Packers, especially for air transport. There are penalties of up to 7 years imprisonment for failing to declare dangerous goods, or incorrectly packaging dangerous goods that are transported by air.

See: Certified Dangerous Goods Packers.

Part 4: Incident Reporting and Emergency Procedures

This Part covers the following topics:

- Incident reporting; and
- Emergency procedures.

Incident Reporting

49. The reporting of incidents, accidents, significant exposures and dangerous occurrences assists the University community avoiding repeated incidents. All incidents involving the storage and handling of chemicals at the university must be reported via the University's on-line Incident Notification Form.

See: University's on-line Incident Notification Form.

Emergency Procedures

50. Consideration must be given to what emergencies may eventuate from the storage and handling of chemicals BEFORE any chemicals are used. Local and University emergency procedures should be considered. Preparation of emergency procedures should be considered in the establishment of Chemical Handling Protocols.
See: University emergency procedures and Chemical Handling Protocol.

51. All personnel in laboratories should be familiar with the First Aid Procedures for exposure to chemicals. First Aid Procedures should take, into account the following:

- Unusual or unique first aid or medical treatments should be identified, and any specific treatment items obtained before handling the chemicals for which the specific treatments are required.
- First aid officers in the relevant areas should be informed of the requirements for, and locations of, unusual or unique treatments.
- In such situations the Work Environment Group shall also be informed so that, if necessary, they may be included in communication with relevant groups.

See: First Aid Procedures and Work Environment Group.

52. Appropriate types and amounts of spill containment resources and absorbing materials shall be made available before commencing any procedure with chemicals. The response to a chemical spill should be as indicated in the ANU Laboratory Spill Management Document, any local area procedures and specific risks identified.

See: Spill containment and absorbing materials, ANU Laboratory Spill Management Document.

53. The risk of fires and adverse chemical reactions should be identified and appropriate risk reduction measures employed. These include:

- Minimising the scale of the reaction;
- Appropriate experimental equipment design;
- Using specialised equipment such as fume cupboards and blast shields; and
- Having appropriate fire-fighting equipment available.

54. Responses to fires and adverse chemical reactions should be in accordance with any local area procedures and ANU procedures.

See: Fume cupboards hazard management procedure and ANU emergency procedures.

Training obligations/courses

55. Work Environment Group runs chemical safety courses. Some local OHS Committees have made these courses compulsorily for new chemical users. Local induction must cover aspects of chemical safety and management requirements.
See: Chemical safety courses, local induction chemical safety and management requirements and Work Environment Group.

History

56. These Chemical Hazard Management Procedures were prepared by the Work Environment Group (see above), reviewed by management, recommended by representatives of staff and management at the OHS Policy Committee and approved by the Director, Human Resources on the 18/03/2011. This procedure should be read in conjunction with the University's Occupational Health and Safety Policy and other relevant policies and procedures of the University.