Health, Safety and Wellbeing
Work safe, live well

Guideline for the Safe and Sustainable Procurement of Chemicals

1. Introduction

The University has a legal obligation under the *Work Health and Safety Act 2011* to control hazards and risks associated with hazardous chemicals within the workplace. In addition, the University is committed to the principles of sustainability in order to minimise the impact on the environment.

2. Purpose and Objectives

This guideline provides criteria to consider during the purchase and acquisition of hazardous chemicals in order to minimise risks and impacts to persons and to the environment.

3. Scope

This guideline applies to all staff, students, volunteers and visitors that purchase, store, use, generate or handle laboratory and other chemicals while undertaking activities at or for the University.

4. Definitions and Terms

Hazardous Chemicals are substances, mixtures or articles that, because of their physical, chemical or acute toxicity properties, present an immediate hazard to people, property or the environment and satisfy the criteria for a hazard class in the GHS.

GHS stands for the Globally Harmonised System of Classification which is an international system that defines the hazardous nature of chemical substances.

5. Green Chemistry Principles

Green chemistry principles encourage the use of strategies to reduce waste, conserve energy and identify replacements for hazardous chemicals. These strategies include using safer and more efficient synthesis methods, minimisation of auxiliary solvents, energy use, and waste reduction in chemical processes. Wherever possible renewable materials, catalysts and substances that degrade into innocuous products are utilised.

The principles of green chemistry should be used in planning work and prior to purchasing. Chemicals should also be evaluated in terms of associated risks. Chemicals and associated processes should be replaced with safer and more sustainable alternatives where possible.

6. Chemical Risk Management

A risk assessment must be conducted for all activities involving the use, transport, storage and disposal of chemicals. Consideration needs to be given to leaks, spills and other adverse events. The Health and Safety team can provide advice and resources to assist in the development of risk assessments.

7. Chemical Management and Training

All areas must have established chemical management procedures in place. All staff and students must complete all relevant induction and other training requirements before being permitted to handle chemicals. Procedures should include traceable inventory management, appropriate access restrictions, regular inspections and stocktakes. It is a requirement that all applicable licences have been obtained e.g. for restricted carcinogens or scheduled substances.

8. Chemical Vendor Selection

The sustainability practices of suppliers should also be considered when purchasing chemicals. The University does have the right to give preference to socially and ethically responsible vendors where the good and/or services have less impact on the environment and human health. Sustainability issues may include, energy efficiency, water efficiency, packaging, recycled content; recycle-ability; re-usability or options for extending life; hazardous chemicals content; emissions of pollutants; disposal impacts; eco-design and the sustainability commitment and performance of the supplier. For significant purchases vendors can submit a Sustainability Questionnaire, for smaller expenditure sustainability benefits can be noted in the product and vendor selection justification information on the purchase request.

9. Chemical Purchasing Process

Chemicals must be ordered in compliance with the University purchasing policies. Price, availability and description details should be obtained from potential vendors and then a purchase request should be submitted through the University portal. All chemicals requisitions are directed to a “Special Approver” in addition to the financial approver. A special approver reviews compliance and safety issues associated with a compound and may contact the requestor for further information or reject the request should any concerns not be addressed by the requestor.

The purchase of chemicals on purchasing cards is discouraged; however, if essential, a record of consultation with a special approver is required. Note: the University may refuse the reimbursement of costs to any individual should they purchase chemicals outside of the University’s purchasing system.

10. Chemical Storage

The quantities of stored chemicals and waste should always be minimised to reduce risks. Accurate chemical inventories should be maintained and checked before purchasing additional stock. Pack sizes should be minimised to avoid excess stock. Appropriate sharing of chemicals is encouraged, provided all safety requirements are met

Storage capacity within the relevant area should also be checked prior to purchase. In most laboratory locations there should not be more than 200 kg or L of all chemicals, 50L of combustible liquids and 10L of flammable liquids within a $50m^2$ area.

Other chemical storage considerations include:

- All flammable cabinets should be 3 metres away from ignition sources and exits.
- Chemical containers should be date stamped when first received and older stocks utilised first.
- Chemical containers should be securely closed when not in use.
- Storage containers should be used with secondary containment such as spill trays
- Chemicals should not be stored on the floor.
- Incompatible chemicals should be stored separately.
- Special care is required for time labile, spontaneous combustible and explosive substances e.g. picric and formic acids.

11. Chemical Handling

Ensure you have read and understood the relevant Safety Data sheet (SDS) available on Chemwatch Gold FFX before handling chemicals. Ensure you are able to comply with all relevant risk controls and emergency reposnse procedures as prescribed in the SDS.

Ensure hazards associated with chemical reactions to be performed are understood as reasonably practicable and controlled procedures are implemented e.g. addition sequences, mixing, concentrating and diluting chemicals. Changed experimental conditions e.g. substituted chemicals , quantity or method of use, should always be verified by an independent subject matter expert.

12. Chemical Disposal

Chemical waste disposal methods include, collection by a commercial chemical waste contractor, or safe in-house neutralisation, evaporation or inactivation. Refer to the Griffith Chemical Waste Procedure or further guidance on chemical disposal.

Other chemical disposal considerations include:

- Waste neutralisation and/or detoxification should be considered as a final step in laboratory experiments and student exercises.
- When preparing a new procedure or protocol, the types and quantities of waste products should be evaluated and possible methods to eliminate waste be considered.
- Waste containers should never be overfilled. Air space of at least 20% should be left in bottles of liquid waste to allow for vapour expansion.

13. Donation or transfer of chemicals from other organisations

Never accept donations of chemicals. There are strict controls around the supply of many chemicals and it may be an offence to supply or receive some chemicals. Donated chemicals may also pose hazards such as poor or missing labelling, degraded or unstable compounds or damaged containers. Whilst it may be financially attractive to receive donated chemicals, it is important to remember that there are substantial costs in the maintenance, storage and disposal of chemicals that will outweigh any initial financial benefit. In the event that a researcher relocates from another organisation, any transfer of chemicals may also not meet all legal and safety requirementsand therefore should not occur without consultation and approval by a special approver and the Health and Safety team.

14. References

Griffith Health & Safety Policy

Work Health and Safety Act 2011

Work Health and Safety Regulation 2011

Environmental Protection Regulation 2019

Managing risks of hazardous chemicals in the workplace Code of Practice 2021