

Guidelines for Chemical Management

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Description	These guidelines describe the University's obligations and commitment, to ensuring the safe procurement, storage, handling, use and disposal of chemicals across the organisation.

Related documents

[Code of Conduct](#)

[Chemical Risk Assessment Guide](#)

[Chemical Risk Assessment Template](#)

[Chemical Waste Disposal Procedure](#)

[Chemical Waste Labelling SOP](#)

[Financial Management Practice Manual](#)

[Griffith University Emergency Management Plan](#)

[Guidelines for the Safe and Sustainable Procurement of Chemicals](#)

[Health and Safety Policy](#)

[Reporting & Recording Procedures for Incidents, Injuries, Dangerous Incidents, Hazards and Near Misses](#)

[Special Approver Guidelines](#)

External Links:

[Chemicals of Security Concern](#)

[Managing Risks of Hazardous Chemicals in the Workplace Code of Practice 2013](#)

[National Code of Practice for Chemicals of Security Concern](#)

[Safe Work Australia: Hazardous Chemicals](#)

[Work Health and Safety Act \(Qld\) 2011](#)

[Work Health and Safety Regulation \(Qld\) 2011](#)

[Relevant Australian Standards eg AS2243.2 and AS2243.10](#)

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1. INTRODUCTION

This guideline provides details of how risks associated with hazardous chemicals are to be managed at the University to ensure a consistent and safe approach to their procurement, storage, handling, use and disposal.

Hazardous chemicals that may cause adverse human health effects include; toxic, corrosive, and carcinogenic chemicals. Chemicals that can immediately injure people physically or damage property include; flammable liquids, compressed gasses, corrosive substances and explosives.

Exposure of workers, the community and the environment to hazardous chemicals must be minimised and can be achieved by implementing appropriate controls based on thorough assessment of the risks. Organisations also have a legal obligation to ensure that worker exposure to hazardous chemicals is below the limits stipulated by the exposure standards.

2. SCOPE

These guidelines apply to all workers and other relevant persons engaged in University business that use or handle chemicals (or may be required to) as part of their work, research or study.

3. DEFINITIONS

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code) – Sets out the requirements for transporting dangerous goods by road or rail.

Chemicals of a security concern - Identified as being certain chemicals that could be used to make homemade explosives or toxic devices.

Chemwatch (Gold FFX) – Software system used to provide Safety Data Sheets (SDS), chemical labels and hazardous chemical registers or manifests.

Explosive gas atmosphere – Mixture with air, under atmospheric conditions, of flammable substances in the form of gas, vapour, dust, fibres or filings which, after ignition, permits self-sustaining propagation.

Exposure Standards – Regulatory authorities define the maximum upper limit to which workers can be exposed to particular hazards.

GSafe – Griffith University's online system used to report incidents and register activities, inspections, training and risk assessments.

Globally Harmonised System of classification and labelling of chemicals (GHS) - Single internationally agreed system of chemical classification and hazard communication through labelling and Safety Data Sheets (SDS).

Hazardous Chemicals – Substances, mixtures and articles that can pose a significant risk to health and safety if not managed correctly. They may have health, physical and environmental hazards.

Hazardous Area (on account of explosive gas atmospheres) – Area in which an explosive gas atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of equipment.

Hazardous Chemical Manifest – A compiled summary of the hazardous chemicals used, handled or stored at a Manifest Quantity Workplace (MQW) as required by Emergency Services.

Hazardous Chemical Register – A list of the hazardous chemicals used, handled or stored at the workplace including the Safety Data Sheet (SDS) for each.

High Risk Chemicals - Those chemicals (e.g. carcinogens, mutagens, reproductive toxicants or sensitisation agents) that pose significant health risk to the person. They may also pose a significant environmental risk and damage depending on quantities stored.

Manifest Quantity Workplace (MQW) – A workplace that stores, handles or uses hazardous chemicals in quantities that exceed or are likely to exceed prescribed quantities.

Market Place – The University online purchasing system for chemicals and other materials.

Regulators:

- The Advisory Committee on the Transport of Dangerous Goods (ACTDG) regulates the transport of Dangerous Goods and publishes the ADG Code.
- The Australian Pesticides and Veterinary Medicines Authority (APVMA) regulates agricultural and veterinary medicines.

- The Therapeutic Goods Administration (TGA) in conjunction with Queensland Health oversees requirements for scheduled substances and Carcinogens including the *Standard for the Uniform Scheduling of Medicines and Poisons* (SUSMP).
- The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) oversee the registration and use of industrial chemicals in Australia.
- Radiation Health – Queensland Health regulate all radioactive substances in Queensland.
- Workplace Health and Safety Queensland (WHSQ) enforce the *Work Health and Safety Act: 2011*, *Work Health and Safety Regulation 2011* and codes of practice in relation to hazardous chemicals in Queensland.

Other relevant persons – Including, but not limited to, visitors, patients/clients and members of the public.

Safe Work Instruction (or Safe Operating Procedure or Standard Operating Procedure) – These are written procedures that instruct a person on how to complete a task or activity in the safest way possible as a result of a risk assessment being conducted on that task or activity.

Safety Data Sheet (SDS) – A document that identifies the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product.

Scheduled Substances – Medicines, drugs or poisons that have been classified under the *Standard for the Uniform Scheduling of Medicines and Poisons* (SUSMP).

Special approvers – Particular individuals within the University that have a level of specialised knowledge to make a determination whether the appropriate protocols and risks have been considered and addressed in relation to purchases, and have the authority to approve these purchases.

Workers – For the purpose of this guideline, these are staff, students (including those persons undertaking work experience, placements and practicum), volunteers, contractors, subcontractors, outworkers, apprentices and trainees.

4. RESPONSIBILITIES

Workers are required to comply with all relevant Australian and Queensland legislation, Australian Standards and Codes of Practice in relation to Hazardous Chemicals.

Specific responsibilities:

Campus Life: Ensure -

- Information relating to the storage and use of chemicals is communicated to emergency services;
- The Hazardous Chemical Register or Manifest (as applicable) is maintained within Chemwatch Gold FFX for any chemicals used or stored by tenants; and
- Placarding is displayed on all buildings and main entrances where stored quantities exceed the placarding threshold.

Elements/Groups: Ensure, for any chemicals used or stored in their area:

- The Hazardous Chemical Register or Manifest (as applicable) is maintained within Chemwatch Gold FFX;
- Safety Data Sheets (SDS) are obtained and are available to workers;
- Risk assessments are conducted for all activities involving chemicals, including storage;
- Safe operating procedures for the use, storage, transport and disposal of chemicals are in place and communicated to workers;
- All workers who use, handle or are likely to be exposed to chemicals are appropriately trained; and
- Personal protective equipment is readily available for use, including training and appropriate storage of such.

Finance: Responsible for ensuring that all purchase requests for chemicals, including those listed in Marketplace receive approval from Special Approvers before orders are placed with suppliers.

Health, Safety and Wellbeing: Responsible for –

- Overseeing the Hazardous Chemical Registers and Manifests in Chemwatch Gold FFX;
- Providing advice to Groups/Elements and users in relation to chemicals;
- Providing support and guidance in obtaining licences and approvals from Regulators; and
- Maintaining and evaluating compliance with policies, guidelines and management plans in relation to chemicals.

Special Approvers: Responsible for ensuring –

- The chemical requested for purchase has a documented risk assessment and that the hierarchy of risk control has been used; and
- That consideration has been given to appropriate quantities and packaging sizes for the building storage and hazardous zoning capacity for the location of the chemical.

Workers: Responsible for-

- Ensuring any training relating to chemicals as part of their role is completed prior to handling chemicals;
- Notifying their supervisor of any condition or illness that through handling of chemicals may place them at risk;
- Ensuring risk assessments are documented;
- Ensuring control measures are implemented (considering the hierarchy of control) and continue to work effectively; and
- Reporting any incident, near miss or other circumstances that may affect the safety of any person.

5. TRAINING

All workers who acquire, manage the transportation or storage of chemicals, manage a facility using chemicals or facilitate chemical risk assessments, are required to complete the online chemical safety training modules listed below. In addition to the online training, workers may also be required to undertake induction training for the facilities in which they will be working. The frequency of such training is outlined in the [University Training Matrix](#).

Griffith University Online Training Modules

- Laboratory and Workshop Safety Training
- General Chemical Training
- Gas Cylinder Training (where applicable)

External Training Modules

- Chemicals of Security Concern Training

Supervisors and managers must ensure individuals involved with the use or management of chemicals complete training in Chemwatch Gold FFX for accessing SDS. Advanced Chemwatch training for supervisors and managers is available within the software or upon request from the Health, Safety and Wellbeing (HSW) Senior Advisor for Chemicals and Radiation.

Supervisors are responsible for ensuring that staff and students are given activity and chemical specific training and follow work procedures when working with chemicals. This is especially critical for work involving high-risk chemicals.

6. CHEMICAL ACQUISITION (PURCHASE OR DONATION)

Prior to acquisition, all chemicals must be risk assessed. This is regardless of whether the chemical is purchased or transferred from another organisation.

Refer to the [Chemical Risk Assessment Guide](#) that advises how to obtain and interpret an SDS in order to complete a chemical risk assessment.

Ordering: All orders for chemicals should be submitted through Marketplace. Orders placed using personal credit cards are not permitted and **will not** be reimbursed. The use of corporate cards to purchase chemicals and laboratory related products is prohibited. Before ordering, all relevant risk and compliance documentation, including training and procedures, must be in place. A reference to the GSafe licence registration and/or risk assessment should be included in the purchase request or attached.

If the acquisition is not made through Marketplace, prior approval for this purchase must be sought from the Head of School. Following this initial approval to proceed, the local approval process must be followed in addition to written approval obtained from a Special Approver prior to ordering or acquiring.

Permits and Licences: In circumstances where approval to purchase, use or store a chemical is required by an external Regulator, then the proposed activity must be logged into the GSafe Laboratory Activity Application Register. Upon registration, the HSW Senior Advisor for Chemicals and Radiation will be able to clarify what Regulator licences are required and provide guidance on the application process. Regulator licences are essential for Restricted and Prohibited Substances, Radioactive Substances and most Scheduled Substances.

Special Approvers: Need to be satisfied that the requester has applied due diligence prior to ordering the chemical and, if not, deny the request in order to seek further information.

Receipt of Goods: Upon receipt of chemical deliveries, care must be taken to safely handle the goods and store in a secure area whilst awaiting pickup. The identity of persons collecting goods must be known. Appropriate manual handling equipment must be used to transfer the chemicals from the delivery point and in accordance with actions on the risk assessment. All containers must be secured in a way to prevent unauthorised access, accidental breakage and spills. If it is essential to transfer gases in cylinders, liquid nitrogen in dewars, or hazardous chemicals via a lift, then passengers must be excluded from the lift whilst this occurs.

Users: Must ensure that the Chemwatch Gold FFX Chemical Register or Manifest (as applicable) is updated for their area. This should be done as soon as practicable after receiving the chemicals and checked on an annual basis.

Refer to [Appendix 1 – Chemical Procurement Flow Chart](#) for a summary of the process.

7. IDENTIFYING HAZARDS

Elements/Groups have the responsibility to ensure that all hazards associated with chemicals that are used and stored within their area, and transported to and from the area, are identified and assessed. When identifying chemical hazards, information from the SDS, labels, placarding, consultant reports and information supplied from the supplier and/or manufacturer should be considered. It is important to consider the wider risk that may eventuate or be exacerbated by the introduction of chemicals to an area.

Risk assessments are the most effective tool for identifying and controlling hazards. Risk assessments are to be completed for the use, storage, transport and disposal of chemicals at least every five (5) years or where there is a new practice or incident that necessitates the review of hazards.

8. ASSESSING RISKS

The handling, dispensing, mixing, reacting, heating, storage and disposing of chemicals must be risk assessed. The context of the activity also needs to be considered, such as the experience of the participants.

The risk assessment process recommended involves summarising the SDS information on each chemical being used in an activity into the [Chemical Risk Assessment Template](#). The spreadsheet template will highlight the risk level, controls and actions to be implemented. The spreadsheet should then be attached to a [GSafe Risk Assessment](#). Further information on this process is available on the [Health, Safety and Wellbeing](#) website.

This process assesses each chemical individually then combines the information for multiple chemicals into the one assessment, which can then be put into context of other risks and processes that may be involved in a particular activity. Some users may find it more convenient to do risk assessments for each process and then reference each one when assessing an entire activity/project/course.

9. CONTROLLING RISKS

When identifying control measures to mitigate risks identified, the “Hierarchy of Risk Control” must be considered. The “Hierarchy of Risk Control” requires that consideration, in order, be given to elimination, isolation, implementing an engineering control, providing administrative controls and finally the provision of personal protective equipment – see [Figure 1](#). Controls may be used in combination.

Examples of risk control can include:

Elimination – assess whether the chemical is required at all, review the work activity or current practice.

Substitution – replace the chemical with a less hazardous alternative.

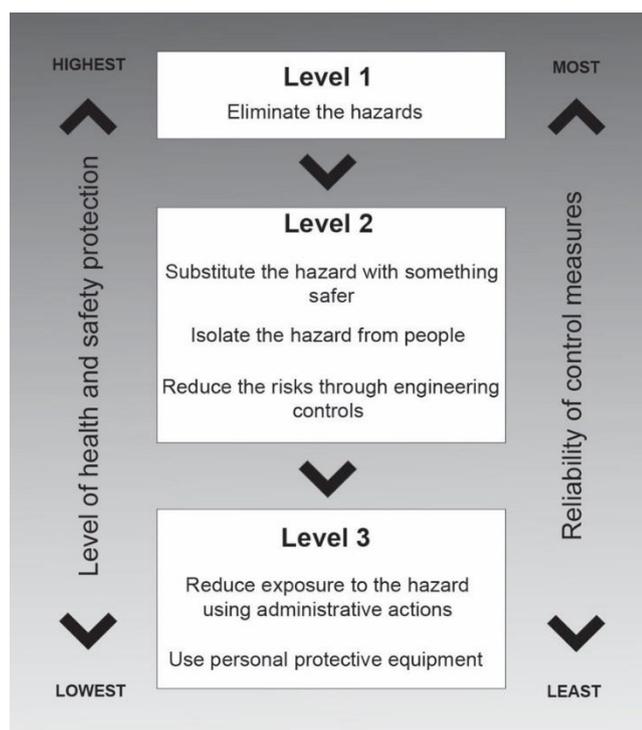
Isolation – use the chemical within a fume hood.

Engineering control – a machine that handles the chemical rather than human interaction.

Administrative controls – safe operating procedure and signage.

Personal Protective Equipment – face shield, glasses, gloves etc.

Figure 1: Hierarchy of Risk Control



Reference - <https://www.safeworkaustralia.gov.au/risk#the-hierarchy-of-risk-control>.

Chemical Handling and Use: It is the responsibility of the Element/Group to prepare and implement Safe Work Instructions for chemical handling in conjunction with the relevant SDS and these guidelines. Procedures must consider the hazards associated with storage, handling and use, including mixing and decanting. Appropriate control measures must be implemented to minimise exposure to risk.

Chemical Labelling: All chemicals and mixtures must be labelled in accordance with the [Work Health and Safety Regulation \(Qld\) 2011](#), this may include: product name, GHS risk and safety phrases. Unlabelled chemicals must be removed from use and storage and disposed of as chemical waste. Chemicals, especially those dispensed or mixed, must be dated in order to monitor degradation. This is essential for hypochlorite and peroxide forming substances.

Personal Protective Equipment (PPE): Chemical users are required to wear PPE as specified by the relevant SDS and associated risk assessment. This may include gloves, respirators, safety eyewear, lab coats and footwear. Care must be taken to ensure that the PPE is compatible, maintained and fitted correctly. Training in the correct use and storage of PPE must be undertaken by the Element/Group.

Chemical Disposal: Users must to follow the requirements outlined in the [Chemical Waste Disposal Procedure](#) which outline the various options and processes for disposal.

Chemical Spills: All areas using hazardous chemicals shall have an appropriate chemical spill kit available and it must be maintained. Supervisors are to ensure workers are trained in the use of spill kits and any incident involving a chemical spill must be reported in GSafe.

Chemical Storage: Chemicals are to be stored in accordance with the relevant legislation and Australian Standards as well as be compliant with the quantity and package sizes permitted under the building certification. These requirements include the following:

- Incompatible chemicals are segregated;
- Bunding, trays or secondary containment are used to contain leaks or spills, and chemical cabinet bunds are not used for storage;
- Fume cupboards are not to be used for medium/long term storage of hazardous chemicals;
- Chemicals in packages greater than 1L or 1kg, should not be stored on shelves over benches above 1.5m in height; and
- Flammable substances are not to be stored in fridges or freezers unless these are spark proof.

Fume cupboards: Laboratory chemicals are to be used and dispensed within a fume cupboard, as determined by risk assessment. Prior to operation, the user should confirm that the fume cupboard certification is current. The fume cupboard sash must also be lowered to ensure efficiency and be compatible with the chemicals to be used. Note: There are certain chemicals, such as, perchloric acid, that may only be used in a fume cupboard specifically designed for its use.

Gases: Gas cylinders should be transported upright by a trained person using an appropriate trolley or device, bottles are to be appropriately restrained at all times and only the correct type of regulator/manifold should be connected by a trained person. Spare gas cylinders must not be stored within laboratories.

10. MONITORING AND REVIEW

Health Monitoring: In some cases, health surveillance may be required for workers exposed to particular hazardous chemicals if it is likely that exposure will impact on the health of the worker. This should be assessed through the risk assessment process.

Inspections/Audits: It is the Element/Group's responsibility to inspect all locations on an annual basis to ensure safety and compliance. These audits are to be completed in GSafe. The HSW Senior Advisor for Chemicals and Radiation may also conduct independent audits on selected facilities containing chemicals. After an audit, the Element/Group is required to complete an action plan to address any issues within 60 days of the audit with action items completed promptly thereafter. In addition, the University's audit team and/or Regulators may periodically conduct audits of facilities containing chemicals.

11. HAZARDOUS AREAS

Hazardous areas are classified into zones based upon frequency of the occurrence and duration of an explosive gas atmosphere.

Zone 0, (*20 for dust*) = explosive gas or dust atmosphere is present continuously, for long periods or frequently.

Zone 1, (*21 for dust*) = explosive gas or dust atmosphere is present occasionally in normal operation.

Zone 2, (*22 for dust*) = explosive gas or dust atmosphere is not likely to occur in normal operation but, if it does occur, it will exist only for a short period.

Where a location is recognised as a hazardous area, either any potential sources of ignition are eliminated or special precautions for the construction, installation and use of electrical apparatus is required to eliminate the likelihood of an explosive gas or dust atmosphere occurring around the ignition sources.

In most practical situations, it is difficult to ensure that an explosive gas or dust atmosphere will never occur. However, if the total quantity of flammable material available for release is "small", for example, bench-work laboratory use, whilst a potential hazard may exist, it may not be a hazardous area. It is recommended that potential ignition sources are excluded from hazardous areas other than where minor quantities of flammable liquids are used or stored. Where a hazardous area assessment has been conducted, the exclusion zones recommended in the report must be followed.

12. STORAGE QUANTITIES

The University is required to maintain a Hazardous Chemical Manifest for Emergency Services, which should be reviewed annually, at the entrances to each Manifest Quantity Workplace campus.

Elements/Groups must also contribute to the maintenance of the University's hazardous chemical registers or manifests (as applicable). This detailed manifest lists the maximum quantity of hazardous chemicals used, handled and stored in each location, including the SDS for each. Care is to be taken to ensure that the quantities of chemicals being used or stored stay within the 'minor storage' quantities or the designed capacity of the particular facility.

The quantity of hazardous chemicals allowable as 'minor storage' are as follows:

Table 1

QUANTITIES OF HAZARDOUS CHEMICALS PERMITTED TO BE STORED IN A LABORATORY OTHER THAN IN A CHEMICAL STORAGE CABINET				
Type of substance or Class/Division of dangerous goods	Maximum per 50 m²-kg or L	Maximum pack size-kg or L	Conditions for storage	Alternative storage options
Class 3 primary or sub-risk	10	5*	Labelled standard laboratory cupboard or in small amounts throughout the laboratory	AS 1940 or AS/NZS 3833
Combustible liquids	50	20	Labelled standard laboratory cupboard or in small amounts throughout the laboratory	AS 1940 or AS/NZS 3833
Divisions 4.1, 4.2, 4.3, 5.1 or 5.2	20 but less than 10 of any one division	10	Labelled standard laboratory cupboard or, for Classes 4.1, 4.3 and 5.1, in small amounts throughout the laboratory	AS 2714 or AS/NZS 3833
Division 6.1	PGI 10 Other 50	PGI 10 Other 20	Labelled standard laboratory cupboard or in small amounts throughout the laboratory	AS/NZS 4452 or AS/NZS 3833
Class 8	20 for liquids 50 for solids	20	Labelled standard laboratory cupboard or in small amounts throughout the laboratory	AS 3780 or AS/NZS 3833
Class 9 and aerosols	50 for liquids 100 for solids	5 for liquids 20 for solids	Labelled standard laboratory cupboard or in small amounts throughout the laboratory	AS/NZS 4681 or AS/NZS 3833
Maximum aggregate quantity	200	–	–	–
Other hazardous chemicals	–	–	Labelled standard laboratory cupboard or in small amounts throughout the laboratory	–

*Flammable liquids of PGI, in containers larger than 2.5Litres, shall not be kept in minor storage unless they are essential for daily operations and handled only by trained personnel

Table 2

QUANTITIES OF HAZARDOUS CHEMICALS PERMITTED TO BE STORED <u>IN</u> A CHEMICAL STORAGE CABINET			
Type of substance or Class/Division of dangerous goods	Maximum kg or L	Maximum pack size kg or L	Conditions for storage
Class 3 primary or sub-risk (Laboratories)	50 Litres per 50m ² of PGI or II 100 Litres per 50m ² of PGIII 200 Litres Total of Combustible Liquids 1 & 2 Aggregate 250	5*	Labelled chemical storage cabinet
Class 3 primary or	5 Litres per 50m ² of PGI or II 10 Litres per 50m ² of PGIII	5*	Labelled chemical storage cabinet

Sub-risk (Other than laboratories)	50 Litres Total of Combustible Liquids 1 & 2		
Divisions 4.1, 4.2, 4.3, 5.1 or 5.2	50	10	Labelled chemical storage cabinet
Division 6.1	250	PGI 10 Other 20	Labelled chemical storage cabinet
Class 8	250	20	Labelled chemical storage cabinet
Class 9 and aerosols	250	5 for liquids 20 for solids	Labelled chemical storage cabinet

13. CHEMICAL DIVERSION

All Elements/Groups and workers using, or that have access to chemicals, are required to observe security protocols and remain vigilant in preventing the unlawful diversion of chemicals for illicit drug manufacture or other unlawful purposes. There is a list of chemicals identified as being [chemicals of security concern](#) because of their potential to be diverted for unlawful purposes, including use by terrorists to make bombs or toxic weapons. The list of these can be found on the [Australian National Security](#) website.

Staff and students are encouraged to report anything that seems unusual to the National Security Hotline on **1800 123 400** or hotline@nationalsecurity.gov.au and to the [Health Safety and Wellbeing team](#).

Any worker found to be directly involved in or that facilitates the diversion of chemicals for illegal purposes will be subject to harsh legal and organisational consequences.

14. EMERGENCY PREPAREDNESS

Chemical Spills: In the event of a chemical spill, the area must be immediately isolated to minimise exposure risk and cleaned up using the emergency spill kit. If a person is exposed to a chemical, they should immediately be provided with medical attention, following the advice contained within the SDS. The incident is to be reported through GSafe.

Emergency Response: For more serious incidents such as fire, explosion or injury, Emergency Services should be contacted immediately (phone 000) followed by notification to security. Refer to the University [Emergency Management Plan](#).

Emergency Equipment: It is essential that all emergency equipment such as safety showers, eyewash stations, spill kits, gas monitors, smoke detectors, first aid kits etc. are regularly tested inspected and maintained as appropriate.

APPENDIX 1: CHEMICAL PROCUREMENT FLOW CHART

User Assesses Risk



- Review Safety Data Sheet
- Conduct Risk Assessment
- Confirm controls
- Complete relevant training
- Register activity & obtain Regulator licences/approval (If applicable)
- Submit Order



Special Approver



- Special Approver**
- Confirms Risk Assessment
 - Confirms Controls
 - Approves Acquisition



Supplier



- Requests End User Declaration (if applicable)
- Processes Order
- Delivers Chemical(s)



Stores



- Receives Goods
- Secures goods ready for pickup
- Contacts user for collection



User Activity



- Transfers chemical(s) to Laboratory
- Adds new chemical(s) to Register
- Implements controls
- Undertakes activities