Chemical Safety Management

IMPLEMENTATION

Aim

To prescribe the responsibilities and actions required for the possession, use, storage and disposal of chemicals on University premises and/or during University-related activities to ensure the University meets the requirements of the Health, Safety and Wellbeing (HSW) Policy principles and the relevant sections of the Work Health and Safety (WHS) Act 2012 (SA) and WHS Regulations 2012 (SA).

This Chapter should be read in conjunction with the Management of Controlled Substances and Controlled Plants Handbook where the substance is also a controlled substance (see definitions).

1 Objectives

1.1 To ensure that the risks of all chemical activities are identified, assessed and the appropriate control measures are in place to prevent an injury and minimise exposure.

1.2 To ensure that all chemical related incidents/injuries have been:

- investigated;
- control measures reviewed before the activity is conducted again; and
- corrective action(s) implemented where required to prevent a recurrence.

2 Scope

2.1 Inclusions

This process is applicable to all workers who undertake University of Adelaide related activities, and/or are employed or engaged by the University or affiliated with the University in any capacity as a worker as defined under the Work Health and Safety (WHS) Act 2012 (SA). This includes but is not limited to employees, title holders, volunteers, students, visitors or contractors where applicable.

Note that:

- Radioactive chemicals are included under chemical management however for the complete requirements; please refer to HSW Handbook Chapter Radiation Safety Management.
- Nanochemicals are included under chemical management requirements.

2.2 Exclusions

- This process does not include asbestos management. Refer to the HSW Handbook Chapter Asbestos Management.
- This process does not include controlled substances or controlled plants. Refer to The HSW Handbook Chapter Management of controlled substances and controlled plants.

Continued

2.2 Exclusions (Continued)

- There are extra duties (which are not included in this chapter) if you are manufacturing or importing hazardous chemicals. If applicable refer and apply the WHS Regulations 2012 (SA) Reg. 329 - 335.

3 Process: Purchasing and Receiving of chemicals

	Person Responsible	Actions
3.1	**All workers identified in the scope of this process**	☐ Review the Safety Data Sheet (SDS) from the manufacturer/ supplier (or refer to Chemwatch) before purchasing, and check the hazards, health effects, precautions for use, safe handling information, storage requirements and exposure standards outlined, to determine if further action is required prior to purchase. This may include: • considering if there is a safer alternative if the chemical has been defined as a "Hazardous Chemical" (see definitions); • ensuring that all safety provisions outlined on the SDS have been considered and appropriate control measures implemented; • providing Personal Protective Equipment (PPE); • ensuring appropriate spill kits/emergency contingency arrangements are in place; • storage facilities are in accordance with specifications; and • checking quantities purchased meet fuel load requirements as per Appendix A. ☐ Ensure the SDS is readily available to all who use the substance or have reasonable need for requesting the information (e.g. first aid officer, goods receiving).
3.2	**Manager of goods receiving workers**	☐ Ensure that all goods receiving workers understand chemical hazards and are able to readily access information on chemicals (SDS). ☐ Ensure that all workers are informed and trained on handling and emergency responses for the chemicals they are receiving.

4 Process: Storage and Use of Chemicals

	Person Responsible	Actions
4.1	**Managers and Supervisors of Laboratories, Workshops and Chemical Stores**	☐ Ensure the chemicals are stored and used in accordance with the SDS and Globally Harmonised System of Classification and Labelling of Chemicals (GHS). See Appendix A for general storage requirements.

Continued

4 Process: Storage and Use of Chemicals (Continued)

Person Responsible		Actions
4.1	**Managers and Supervisors of Laboratories, Workshops and Chemical Stores** (Continued)	☐ Ensure that any chemical used, handled or stored does not become unstable, decompose or change to create another hazard or increase the risk unless it is a part of a deliberate process or activity which has been risk assessed and had controls implemented. ☐ Ensure that you refer the following information sheets if you require extra information regarding storage and use of specific substances: • Hydrofluoric acid Information Sheet, • Cryogenic substances Information Sheet, • Cyanides Information Sheet, • Gas cylinders and Compressed gases Information Sheet, • Peroxidisables and Explosives Information Sheet, and • Nanomaterials Information Sheet. ☐ Ensure that the holdings of security sensitive chemicals are monitored and these items are secured in accordance with Appendix C Security Sensitive Ammonium Nitrate, Chemicals of Security Concern and Chemical Weapons. ☐ Ensure that if you are undertaking abrasive blasting or spray painting that it is not undertaken in conjunction with restricted hazardous chemicals (see tables in Appendix B). ☐ Ensure that if you are undertaking lead processes (as defined by Work Health and Safety Regulations 2012 (SA) Reg. 392 consult with Health, Safety and Wellbeing (HSW) Team for guidance before commencing. **Labelling and Placarding** ☐ Ensure that all stored chemicals are labelled and placarded in accordance with Appendix E Labelling, Placarding, Registers and Manifests.
4.2	**Head of School/Branch** (Any or all of these tasks can be delegated to School/Branch staff, however the Head of School/Branch must monitor the tasks on a regular basis to ensure they take place.)	**Chemical Register** ☐ Maintain a University approved School/Branch hazardous chemical register refer to Appendix E which is updated at least once a year (contact HSW Team for assistance). ☐ Ensure that the register is in a format which can be viewed by the emergency services in the event of an emergency. ☐ Ensure that the register is in a format which can be viewed by University or external organisations. **Manifest and emergency plan for specific hazardous chemicals** ☐ In consultation with the HSW Team prepare and amend a School/Branch chemical manifest and emergency plan if quantities used, handled or stored in a building exceed regulated quantities (see Appendix E). **Continued**

4 Process: Storage and Use of Chemicals (Continued)

	Person Responsible	Actions
4.2	**Head of School/Branch** (Continued)	**Permits and Licensing** ☐ Ensure a permit is held and required records kept if using or storing prohibited or restricted carcinogens (see Appendix B).
4.3	**Director, HSW** (or HSW Team delegate)	☐ Assist Schools with the requirements (including submitting to the emergency services) for chemical manifest and emergency plans if quantities used, handled or stored in a building exceed regulated quantities (see Appendix E).
4.4	**All workers identified in the scope of this process**	☐ Ensure all chemicals are stored and used in accordance with this chapter of the HSW Handbook and SDS where applicable.
4.5	**All workers identified in the scope who are pregnant or are considering conception**	☐ If you want extra information please refer to Reproductive toxicity Information Sheet

5 Process: Chemical Hazard Management

	Person Responsible	Actions
5.1	**Head of School/Branch** (refer to 4.2 for delegations)	☐ Ensure that all areas which contain hazardous chemicals have a supervisor/manager responsible for the activities under 5.2 and 6.1 (this is normally the overarching academic or lab/workshop manager – Note: it is not appropriate that this person is a student). ☐ Ensure that there is a risk assessment in place prior to workers conducting activities involving hazardous chemicals (see Appendix D and HSW Handbook Chapter Hazard Management). ☐ Ensure hazards for specific substances are managed in accordance with the HSW Handbook Chapter Hazard Management. For more information regarding these chemicals refer to the following information sheets: • Hydrofluoric Acid, • Cryogenic Substances, • Cyanides, • Gas Cylinders and Compressed Gasses, • Peroxidisables and Explosives, and • Nanomaterials.

Continued

5 Process: Chemical Hazard Management (Continued)

Person Responsible		Actions
5.1	**Head of School/Branch** (Continued) (refer to 4.2 for delegations)	☐ Ensure exposure to a chemical is kept to as low as is reasonably practicable and always below the exposure standards by using the highest level of control where possible. (Note: The aim is to minimise the risk to health as some people may be more sensitive to chemicals than other people. Additionally, the combined effects (synergism) of chemicals in mixtures can be more hazardous to health than the individual substances). ☐ Ensure that controls are implemented as identified by the risk assessment outcomes. ☐ Ensure air and health monitoring is conducted where required. See Air & Health Monitoring information sheet. ☐ Ensure that risk assessments and control measures are reviewed in accordance with the HSW Handbook Chapter Hazard Management.
5.2	**Managers and Supervisors of Laboratories, Workshops and Chemical Stores**	☐ Ensure that risk assessments are conducted in accordance with the HSW Handbook Chapter Hazard Management.
5.3	**All workers identified in the scope of this process**	☐ Ensure all activities involving hazardous chemicals are risk assessed and controls are implemented prior to commencement (refer to HSW Handbook Chapter Hazard Management. ☐ Ensure that control measures are reviewed.

6 Process: Training

Person Responsible		Actions
6.1	**Managers and Supervisors of Laboratories, Workshops and Chemical Stores**	☐ Ensure that all workers using or handling hazardous chemicals have been appropriately trained on handling, storing and disposing of chemicals prior to working in the area/undertaking the activity. ☐ Ensure that appropriate supervision is provided where hazardous chemicals are being used (see HSW Handbook Chapter Information, Instruction and Training). ☐ Ensure training is recorded in accordance with HSW Handbook Chapter HSW Training Plan.
6.2	**All workers identified in the scope of this process**	☐ Participate in training on tasks involving hazardous chemicals as required by your Manager/Supervisor.

7 Process: Chemical Emergency contingencies and incidents

Person Responsible		Actions
7.1	**Head of School/Branch** (refer to 4.2 for delegations)	☐ Ensure areas storing and using hazardous chemicals develop, implement and test contingency plans in accordance with Chemical Emergencies and Contingency Arrangements (see Appendix G). ☐ Ensure a hazardous chemicals manifest is written; where the building is holding above the legislated quantities (see Appendix E). ☐ Ensure spill kits appropriate to the hazards in the area are made available and workers are trained in their use. ☐ Ensure emergencies (including spills and exposures) for specific chemicals are managed in accordance with Chemical Emergencies and Contingency Arrangements (see Appendix G and also refer to the following information sheets for extra information): • Hydrofluoric Acid, • Cryogenic Substances, • Cyanides, • Gas Cylinders and Compressed Gasses, • Peroxidisables and Explosives, and • Nanomaterials. ☐ Ensure that there are compliant safety showers and eyewash stations where applicable. ☐ Ensure that all chemical incidents are reported and investigated in accordance with the HSW Handbook Chapter Incident, Near miss Reporting and Investigation.

7 Process: Chemical Emergency contingencies and incidents (Continued)

Person Responsible		Actions
7.2	**All workers identified in the scope of this process**	☐ Ensure you are aware of the relevant emergency contingency arrangements, including the location and use of spill kits, emergency showers/eyewash stations and first aid provisions in your area. ☐ Participate in any testing of emergency contingency arrangements where required.

8 Process: Transportation of Chemicals

Person Responsible		Actions
8.1	**Head of School/Branch** (refer to 4.2 for delegations)	☐ Ensure workers who transport chemicals do so in accordance with Transportation of Chemicals (see Appendix F).

8 Process: Transportation of Chemicals (Continued)

Person Responsible		Actions
8.2	**All workers identified in the scope of this process**	☐ Transport chemicals in accordance with Transportation of Chemicals (see Appendix F).

9 Process: Disposal of Chemicals

Person Responsible		Actions
9.1	**Head of School/Branch** (refer to 4.2 for delegations	☐ Ensure workers dispose of chemicals in accordance with Chemical Disposal Requirements (see Appendix H)
9.2	**All workers identified in the scope of this process**	☐ Dispose of chemicals in accordance with Chemical Disposal Requirements (see Appendix H). ☐ Ensure that if you are leaving the University permanently that all chemicals are either disposed of or the chemicals are transferred to another worker.

3.20 Definitions

Airborne contaminants: are defined as a contaminant in the form of a fume, mist, gas, vapour or dust, and includes micro-organisms.

Bunding: A container that can contain the entire contents of a bottle in the event of breakage or spill.

Chronic effects: are defined as effects that usually occur following repeated low dose exposures over an extended period of time, possibly years. Chronic toxicity can affect any organ system.

Controlled substances (or scheduled drugs & poisons): are pharmaceuticals and poisons that require licensing. Under the licence conditions there are restrictions on access, labelling and use. The purpose of the classification is to restrict the accessibility by non-authorised people to particular groups of pharmaceutics and poisons.

Correct classification: means the set of hazard classes and hazard categories assigned to a hazardous chemical when correctly classified**.**

Dangerous Goods: are solids, liquids or gases that have been classified as dangerous under the *Australian Code for the Transport of Dangerous Goods by Road or Rail* (the ADG code). Substances in this classification must adhere to legislative requirements when being ***transported*** by road or rail.
• Packing Group I (PGI) indicates dangerous goods that are highly dangerous.
• Packing Group II (PGII) indicates dangerous goods that are moderately dangerous.
• Packing Group III (PGIII) indicates dangerous goods that are mildly dangerous.
Note the storage of dangerous goods is now included in the term hazardous chemicals. Dangerous goods requirements only are applicable to the transportation.

GHS: means the Globally Harmonised System of classification and labelling of chemicals (3rd edition).

Hazardous chemical: is a substance, mixture or article that satisfies the criteria for a hazard class in the GHS. This term replaces hazardous substances and the storage of dangerous goods.

10 Definitions (Continued)

Hazardous substance (note will be phased out by 31 Dec 2016 the replacement term is hazardous chemical): is defined as a substance that has the potential to cause harm to a person's health, and are defined by the National Occupational Health & Safety Commission (NOHSC). They can be defined as: very toxic, toxic, harmful, irritant, carcinogenic, mutagenic, teratogenic, corrosive, and sensitising.

Hazard Statement means a statement assigned in the GHS to a hazard class of hazard category describing the nature of the hazards of a hazardous chemical including, if appropriate, the degree of hazard (see Appendix E).

Hazchem Code means a hazchem code under the ADG Code, also known as an emergency action code.

Lead means lead metal, lead alloys, inorganic lead compounds and lead salts of organic acids. For the definition of Lead processes please refer to WHS Regulations 2012 (SA) Reg. 392.

Manifests: are a written summary of the hazardous chemicals used, handled or stored at a workplace which is used by the Emergency Services in the event of an emergency. Its principal purpose is to inform Emergency Services about the chemical hazards that may exist in a building so that appropriate action can be selected to prevent loss of life, minimise property damage and to prevent inappropriate action being taken.

Placarding: means a sign or notice containing information about hazardous chemicals which is displayed in a prominent place, or next to a container or storage area for the chemicals.

Precautionary Statements: is a phrase on the label describing measures recommended to prevent or minimise:

- the adverse effects of exposure to a hazardous chemical; or
- improper handling of a hazardous chemical.

Prohibited and Restricted carcinogens: are substances which require a permit from SafeWorkSA. Note the substances are listed in Appendix B of this Handbook (WHS Regulations 2012 (SA) Schedule 10 (Table 10.1)). Exemptions apply for substances that are 0.1% or less in concentration.

Research chemical: means a substance or a mixture that is manufactured in a laboratory for genuine research and is not for use or supply for a purpose other than analysis or genuine research.

Safety Data Sheet (an **SDS**): is a document prepared by the manufacturer or importer of all chemicals that describes uses, chemical and physical properties, health hazard information, precautions for use, safe handling information and emergency information (Note: formerly known as MSDS).

Signal Words: is a one-word indicator indicating the level of severity of the hazard. It is required to be on the label under GHS and details can be obtained by referring to the SDS.

Threshold quantity: the quantity at which there is a requirement to implement legislative requirements (below the quantity is exempt).

Worker means according to the WHS Act 2012 (SA) a person who carries out work in any capacity for a person conducting a business or undertaking, including work as -

a) an employee; or
b) a contractor or subcontractor; or
c) an employee of a contractor or subcontractor; or
d) an employee of a labour hire company who has been assigned to work in the person's business or undertaking; or
e) an outworker; or
f) an apprentice or trainee; or
g) a student gaining work experience; or
h) a volunteer; or
i) a person of a prescribed class.

The person conducting the business or undertaking is also a worker if the person is an individual who carries out work in that business or undertaking. Note -Higher Degree Research students and Academic Visitors are likely to be workers under the WHS Act 2012 (SA).

11 Performance Measures

The HSW Team will use performance measures to assist in identifying areas of success and/or where corrective action is required to meet the objectives and targets of this process.
The level of compliance with the chapter and effectiveness will be determined during the internal audit process.

12 Useful information and resources

12.1 University related documents and resources

- HSW Handbook Chapter Asbestos Management
- HSW Handbook Chapter Hazard Management
- HSW Handbook Chapter HSW Information, Instruction and Training
- HSW Handbook Chapter HSW Training Plan
- HSW Handbook Chapter Incident Reporting and Investigation
- HSW Handbook Chapter Management of Controlled Substances and Controlled Plants
- HSW Handbook Chapter Radiation Safety Management
- Air & Health Monitoring Information Sheet
- Cryogenic substances Information Sheet
- Cyanides Information Sheet
- Emergency safety showers and eye wash Maintenance Information Sheet
- Fume Cupboards Information Sheet
- Gas cylinders and Compressed gases Information Sheet
- Hydrofluoric acid Information Sheet
- Nanomaterials Information Sheet
- Peroxidisables and Explosives Information Sheet
- Understanding of Safety Data Sheets Information Sheet
- Reproductive toxicity Information Sheet

12.2 Related Legislation

- Dangerous Substances (SA) Act 1979.
- Dangerous Substances Regulations (SA) 2017.
- Dangerous Substances Transport Regulations (SA) 2008.
- Excise Act (Cth) 1901.
- Explosives Act (SA)1936.
- Explosives Regulations (SA) 2011
- Explosives (Security Sensitive Substances) Regulations (SA) 2006 (and exemption gazetted 5 October 2006).
- Globally Harmonized System of Classification and Labelling of Chemicals third edition 2009
- Work Health and Safety Act 2012 (SA).
- Work Health and Safety Regulations 2012 (SA).
- Code of Practice Managing Risks of Hazardous Chemicals in the Workplace 2020.
- Code of Practice Labelling of Workplace Hazardous Chemicals 2020.
- Code of Practice for the Storage and Transport of Drugs of Dependence (2012).
- National Code of Practice for Chemicals of Security Concern 2013.
- The Australian Code for the Transport of Dangerous Goods by Road or Rail (2018).
- Workplace Exposure Standards for Airborne Contaminants 2019.

12.3 Other Resources

- Australia Post Dangerous and Prohibited Goods Packaging and Post Guide (2020)
- AS/NZS 2243 (series) (2006) Safety in Laboratories.
- Australian Standard AS 1319 (1994) Safety Signs for the Occupational Environment.
- Australian Standard, AS 1596 (2014) The Storage and Handling of LP Gas.
- Australian Standard, AS 1940 (2017) The Storage and Handling of Flammable and Combustible Liquids.
- Australian Standard, AS 1894 (1997) The Storage and Handling of Non-flammable Cryogenic and Refrigerated Liquids.
- Bretherick's Handbook of Reactive Chemical Hazards.
- Classification and labelling for workplace hazardous chemicals poster.
- CASA Guidance Sending Dangerous Goods by Air.
- Guide for Preventing and Responding to Cyanide Poisoning in the Workplace 2013.
- Human Health Hazard Assessment and Classification of Carbon Nanotubes by the National Industrial Chemicals Notification and Assessment Scheme
- Hydrogen Fluoride [NOHSC:5001(1989)].
- Hazardous Substances Information System.
- Health Monitoring for Exposure to Hazardous Chemicals Guide for Persons Conducting a Business or Undertaking.
- Safe and Effective Pesticide Use Handbook (EPA).
- Safe Handling and Use of Carbon Nanotubes (Information sheet).
- Safe Work Australia poster: classification & labelling for workplace hazardous chemicals.

STORAGE (GENERAL REQUIREMENTS)

General

- Chemicals and laboratory equipment are not to be stored in offices.
- Chemicals stored on the floor must be a bunding tray.
- If keeping chemicals on shelves they should be below 1.8 metres high where possible.
- Ideally, shelves should have a lip on the forward edge to prevent bottles from slipping off.
- Shelving units should be securely fastened to the wall or floors. Shelves should not be overloaded e.g. shelving is bowed.
- Containers of all types must be in a sound condition, free from rust, deformity and be inspected for any signs of leakage.
- Containers must be made of material which is compatible with, and will not be adversely affected by the chemical.
- Do not reuse food or beverage containers for storage of chemicals excluding food/beverages that are used for research purposes (see Appendix E).
- Ensure chemicals are appropriately segregated not stored alphabetically (see below).
- Liquids must not be stored above solids unless the liquids are bunded.
- When storing chemicals consider the weight of the chemicals as collapse of the shelves and breakage of bottles could occur.

Segregation

Segregation refers to physical separation of containers and isolation of potential spills and releases with the goal of preventing chemical reactions. The following classes must be segregated from each other and all other classes

- GHS Flammable liquids (DGC 3).
- GHS Flammable solids/Self-reactive/Pyrophoric liquids/Self heating substances/Substances and mixtures which in contact with water emit flammable gases (DGC 4).
- GHS Oxidising solids/Oxidising liquids/Organic peroxides type A-F (DGC 5).
- GHS Acute toxicity (DGC 6.1).
- GHS Corrosion (DGC 8) and within this class prevent reactions between acids and alkalis.

Cabinets

- Bunded, vented chemical cabinets (which are designed to contain spills) are available for minor storage of flammables, corrosive, oxidising and toxic chemicals within buildings (venting may only be required if storing volatile, extremely toxic or corrosive substances).
- Shelving should be appropriate to the substances being stored. For example, wooden shelves may burn on contact with some oxidising agents or metal shelves could cause static discharge.

Flammable liquids

- Flammable liquids must not be used or stored near exits to minimise endangering people in the event of a fire.
- Do not store flammables in close proximity to ignition sources.
- Flammable liquids should never be stored in (or alongside) domestic refrigerators as a spark from the motor or internal light can cause an explosion. Where a refrigerator is required to store flammable liquids, it should be intrinsically safe (either from manufacture or by modification).
- Flammable liquid cabinets must not be used for storage of any other substance.
- Flammable liquids should not exceed 2.5L in a fume cupboard.

Storage Levels of Chemicals AS 2243.10)

WHS Regulations 2012 (SA) Reg. 53 states that flammable and combustible substances must be kept at lowest practicable quantity (includes waste and empty containers and gas cylinders). Below are the Australian Standard (AS/NZS 2243.10 (2004) Safety in laboratories - Storage of chemicals) quantities, if you need to hold more than these quantities you must conduct a risk assessment specifically for storage on your holdings.

GHS Class (DG Class)	Storage Location	Maximum amount
Flammable Liquids (DGC 3)	Outside the flammables cabinet or in other types of storage cabinets	10L per 50m^2 of floor space
	Flammable liquids cabinet	No more than 250L
Flammable solids (DGC 4.1)	Outside the chemical cabinet or in other types of storage cabinets	20 Kg per 50m^2
	Chemical cabinet	50 Kg per laboratory
Pyrophoric liquids/ Pyrophoric solids/Self heating substances and mixtures (DGC 4.2	Outside the chemical cabinet or in other types of storage cabinets	20 Kg or L per 50m^2
	Chemical cabinet	50 Kg or L per laboratory
Substances which in contact with water emit flammable gas (DCG 4.3)	Outside the chemical cabinet or in other types of storage cabinets	20 Kg or L per 50m^2
	Chemical cabinet	50 Kg or L per laboratory
Oxidising liquids/ Oxidising solids (DGC 5.1)	Outside the chemical cabinet or in other types of storage cabinets	20 Kg or L per 50m^2
	Chemical cabinet	50 Kg or L per laboratory
Organic peroxides (DGC 5.2)	Outside the chemical cabinet or in other types of storage cabinets	20 Kg or L per 50m^2
	Chemical cabinet	50 Kg or L per laboratory
Acute Toxicity (DGC 6.1)	Outside the chemical cabinet or in other types of storage cabinets	Category 1 (PG1) 10 Kg or L per 50m^2 Other categories 50 Kg or L per 50m^2
	Chemical cabinet	250 Kg or L per laboratory
Note DGC 7 is not a part of GHS please refer to the HSW Handbook Chapter Radiation Safety Management		
Corrosives (DGC 8)	Outside the chemical cabinet or in other types of storage cabinets	20 L for liquids per 50m^2 50Kg for solids per 50m^2
	Chemical cabinet	250 Kg or L per laboratory
Maximum aggregate quantities	Outside the chemical cabinet or in other types of storage cabinets	200 Kg or L per 50m^2

PROHIBITED/RESTRICTED CARCINOGENS AND RESTRICTED HAZARDOUS CHEMICALS

From 1st January 2014 if your School is conducting genuine research using prohibited or restricted carcinogens (or is intending to hold these substances) they **must** obtain government authorisation. Exemptions apply for substances that are 0.1% or less in concentration. (WHS Regulations 2012 (SA) Schedule 10 (Table 10.1)).

If you have any of the following chemicals and have not obtained a permit or a supplier has requested a permit before supply of a compound, please contact the HSW team for assistance.

The SafeWork SA permit process requires an application to be completed which includes a risk management plan and a competent person sign off.
Permits do not have an expiry date and do not have an application fee, however there are fines attached to incorrect data in applications and the onus is on the School to ensure that all the information is up to date.
The School is to review at least once a year (e.g. reminders can be added to the Schedule of Programmable Events) and any changes must be submitted by the School to SafeWorkSA using the amendment form.

Once you have your permit you will be required adhere to any condition for the prohibited/restricted carcinogen.

Your risk management plan and details sent to SafeWorkSA will be subjected to internal and external audits.

Prohibited Carcinogens	
Name [CAS Number]	
2-Acetylaminofluorene [53-96-3]	
Aflatoxins	
4-Aminodiphenyl [92-67-1]	
Benzidine [92-87-5] and its salts (including benzidine dihydrochloride [531-85-1])	
bis(Chloromethyl) ether [542-88-1]	
Chloromethyl methyl ether [107-30-2] (technical grade which contains bis(chloromethyl) ether)	
4-Dimethylaminoazobenzene [60-11-7] (Dimethyl Yellow)	
2-Naphthylamine [91-59-8] and its salts	
4-Nitrodiphenyl [92-93-3]	
Restricted Carcinogens	**Restricted Use**
Acrylonitrile [107-13-1]	**All**
Benzene [71-43-2]	All uses involving benzene as a feedstock (additions into a manufacturing processes) containing more than 50% of benzene by volume and/or **genuine research or analysis.**
Cyclophosphamide [50-18-0]	When used in preparation for therapeutic use in hospitals and oncological treatment facilities, and in manufacturing operations and/or **genuine research or analysis.**
3,3'-Dichlorobenzidine [91-94-1] and its salts (including 3,3'-Dichlorobenzidine dihydrochloride [612-83-9])	**All**
Diethyl sulfate [64-67-5]	All
Dimethyl sulfate [77-78-1]	All
Ethylene dibromide [106-93-4]	When used as a fumigant and/or **genuine research or analysis**
4,4'-Methylene bis(2-chloroaniline) [101-14-4] MOCA	All
3-Propiolactone [57-57-8] (Beta-propiolactone)	All
o-Toluidine [95-53-4] and o-Toluidine hydrochloride [636-21-5]	All
Vinyl chloride monomer [75-01-4]	All

PROHIBITED/RESTRICTED CARCINOGENS AND RESTRICTED HAZARDOUS CHEMICALS

Restricted Hazardous Chemicals
Ensure that if the School is undertaking activities listed in the "restricted use" column that it is not undertaken in conjunction with the associated restricted hazardous chemical. Please contact HSW team for more information.

Restricted hazardous chemicals	Restricted Use
Antimony and its compounds	For abrasive blasting at a concentration of greater than 0·1% as antimony
Arsenic and its compounds	For abrasive blasting at a concentration of greater than 0·1% as arsenic For spray painting
Benzene (benzol), if the substance contains more than 1% by volume	For spray painting
Beryllium and its compounds	For abrasive blasting at a concentration of greater than 0·1% as beryllium
Cadmium and its compounds	For abrasive blasting at a concentration of greater than 0·1% as cadmium
Carbon disulphide (carbon bisulphide)	For spray painting
Chromate	For wet abrasive blasting
Chromium and its compounds	For abrasive blasting at a concentration of greater than 0·5% (except as specified for wet blasting) as chromium
Cobalt and its compounds	For abrasive blasting at a concentration of greater than 0·1% as cobalt
Free silica (crystalline silicon dioxide)	For abrasive blasting at a concentration of greater than 0·1% For spray painting
Lead and compounds	For abrasive blasting at a concentration of greater than 0·1% as lead or which would expose the operator to levels in excess of those set in the WHS Regulations 2012 (SA) covering lead
Lead carbonate	For spray painting
Methanol (methyl alcohol), if the substance contains more than 1% by volume	For spray painting
Nickel and its compounds	For abrasive blasting at a concentration of greater than 0·1% as nickel
Nitrates	For wet abrasive blasting
Nitrites	For wet abrasive blasting
Radioactive substance of any kind where the level of radiation exceeds 1 Bq/g	For abrasive blasting, so far as is reasonably practicable
Tetrachloroethane	For spray painting
Tetrachloromethane (carbon tetrachloride)	For spray painting
Tin and its compounds	For abrasive blasting at a concentration of greater than 0·1% as tin
Tributyl tin	For spray painting

SECURITY SENSITIVE AMMONIUM NITRATE, CHEMICALS OF SECURITY CONCERN AND CHEMICAL WEAPONS

Security Sensitive Ammonium Nitrate (SSAN)

The potential for use of ammonium nitrate as a component of explosives has led the Australian Government to impose strict controls on the purchase, storage and use of this substance through the Explosives (Security Sensitive Ammonium Nitrate) Regulations 2006. The University has obtained an exemption from the full range, but not all, of these controls. The exemption (Gazette 5 October 2006) is subject to the following conditions:

- ☐ All purchases must be recorded in an auditable format.
- ☐ All use and disposal must be recorded in an auditable format listing quantity and date.
- ☐ Records must be kept for 5 years.
- ☐ All records must be made available to an Inspector of Explosives on request within 14 days.
- ☐ Loss or theft is to be reported to SafeWork SA Dangerous Substances Department and the SA Police.
- ☐ Procedures for security are written and SSAN is secured.
- ☐ No more than 3kg is allowed to be kept in a laboratory or other area of use at any time.

Solid (powder) at a concentration of greater than 45% has been classified as Security Sensitive Ammonium Nitrate (SSAN). Solutions of ammonium nitrate are not subject to the legislation.

Chemicals of Security Concern

This national code is concerned with specific chemicals which can be diverted from legitimate research/agricultural/veterinary uses into unlawful purposes.
The University of Adelaide is adopting the intent of this code by restricting the quantity and applying security restrictions to the 96 chemicals of security concern (see Table 1 below)

If your laboratory exceeds the University prescribed quantities (see Table 1 below) then the chemical is subject to the following conditions:

- ☐ All purchases must be recorded in an auditable format.
- ☐ All use and disposal must be recorded in an auditable format listing quantity and date.
- ☐ Records (of purchase, use and disposal) must be kept for 5 years.
- ☐ Loss or theft is to be reported to the HSW team who will notify National Security (1800 124900).
- ☐ Procedures for security are written and implemented.

Please note that some of the following chemicals (see Table 1 (** indicates a chemical weapon) and Table 2) are also under the control of the Chemical Weapons (prohibition) Act (Cth), if you have any of the indicated chemicals please contact the HSW team for assistance with permit and notification requirements

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SECURITY SENSITIVE AMMONIUM NITRATE, CHEMICALS OF SECURITY CONCERN AND CHEMICAL WEAPONS

Table 1: Chemicals of Security Concern

Chemical	Cas number	Concentrations	University Prescribed Quantities per Laboratory
Aldicarb	116-06-3	All concentrations	100g or mL
Aluminium phosphide	20859-73-8	All concentrations	100g or mL
Ammonium nitrate *	NA	Powders at 45% or greater	All holdings
Ammonium perchlorate	7790-98-9	Water-based solutions 10% or greater All other forms 65% or greater	2Kg or L
Arsenic pentoxide	1303-28-2	All concentrations	1Kg or L
Arsenic trioxide	1327-53-3	All concentrations	1Kg or L
Arsine	7784-42-1	All concentrations	100g or mL
Azinphos methyl	86-50-0	All concentrations	100g or mL
Bendiocarb	22781-23-3	All concentrations	100g or mL
Beryllium sulfate	13510-49-1	All forms 65% or greater	500g or mL
Bromine	7726-95-6	All concentrations	2Kg or L
Cadusafos	95465-99-9	All concentrations	100g or mL
Calcium cyanide	592-01-8	All concentrations	100g or mL
Carbofuran	1563-66-2	All concentrations	100g or mL
Carbon disulphide	75-15-0	All concentrations	2Kg or L
Carbon monoxide	630-08-0	All concentrations	50L
Chloropicrin**	76-06-2	All concentrations	15Kg or L
Chlorfenvinphos	2701-86-2	All concentrations	200mL
Chlorine	7782-50-5	All concentrations	50L
Cyanogen bromide	506-68-3	All concentrations	1Kg or L
Cyanogen chloride**	506-77-4	All concentrations	15Kg
Diazinon	333-41-5	All concentrations	1Kg or L
Dichlorvos	62-73-7	All concentrations	5Kg or L
Diethyl phosphite**	762-04-9	All concentrations	20Kg
Dimethyl phosphite**	868-85-9	All concentrations	20Kg
Dimethyl mercury	593-74-8	All concentrations	100g or mL
Dimethyl sulfate	77-78-1	All concentrations	1Kg or L
Disulfoton	298-04-4	All concentrations	100g or mL
Endosulfan	115-29-7	All concentrations	40Kg or L
Ethion	563-12-2	All concentrations	100g or mL
Ethyl mercury chloride	107-27-7	All concentrations	100g or mL
Ethyldiethanolamine**	139-87-7	All concentrations	20Kg or L
Fenamiphos	22224-92-6	All concentrations	100g or mL
Fluorine gas	7782-41-4	All concentrations	2 x D sized cylinder = 20L
Fluoroacetic acid	144-49-0	All concentrations	50g or mL
Fluoroethyl alcohol	371-62-0	All concentrations	100g or mL
Fluoroethyl fluoroacetate	459-99-4	All concentrations	100g or mL
Hydrochloric acid	7647-01-0	30% or greater	100Kg or L
Hydrogen chloride	7647-01-0	All concentrations	1Kg or L
Hydrogen cyanide**	74-90-8	All concentrations	15Kg or L

* See SSAN section above for restrictions on ammonium nitrate.

** Also controlled under the Chemical Weapons (prohibition) Act (Cth) 1994 see chemical weapons (page 18).

SECURITY SENSITIVE AMMONIUM NITRATE, CHEMICALS OF SECURITY CONCERN AND CHEMICAL WEAPONS

Table 1: Chemicals of Security Concern (Continued)

Chemical	Cas number	Concentrations	University Prescribed Quantities per Laboratory
Hydrogen peroxide	7722-84-1	Water-based solutions any concentration All other forms 15% or greater	10Kg or L
Hydrogen sulphide	7783-06-4	All concentrations	2 x D sized cylinder = 20L
Magnesium phosphide	12057-74-8	All concentrations	100g or mL
Mercuric chloride	7487-94-7	5% or greater	1Kg or L
Mercuric nitrate	10045-94-0	All concentrations	500g or mL
Mercury cyanide	592-04-1	All concentrations	100g or mL
Methamidophos	10265-92-6	All concentrations	100g or mL
Methidathion	950-37-8	All concentrations	100g or mL
Methiocarb	2032-65-7	All concentrations	100g or mL
Methomyl	16752-77-5	All concentrations	100g or mL
Methyl Fluoroacetate	453-18-9	All concentrations	100g or mL
Methyldiethanolamine**	105-59-9	All concentrations	20Kg or L
Mevinphos	7786-34-7	All concentrations	100g or mL
Nitric acid	7697-37-2	At a concentration of 30% or higher	50L
Nitric oxide	10102-43-9	All concentrations	2 x G sized cylinder = 96L
Nitromethane	75-52-5	At a concentration of 10% or higher	5L
Omethoate	1113-02-6	All concentrations	2Kg or L
Osmium tetroxide	20816-12-0	At a concentration of 10% or higher	200g or mL
Oxamyl	23135-22-0	All concentrations	100g or mL
Paraquat	4685-14-7	At a concentration of 30% or higher	1Kg or L
Parathion methyl	298-00-0	All concentrations	100g or mL
Perchloric acid	7601-90-3	All concentrations	100Kg or L
Phorate	298-02-2	All concentrations	100g or mL
Phosgene**	75-44-5	All concentrations	15 Kg or L
Phosphine	7803-51-2	All concentrations	2 x D sized cylinder = 20L
Phosphorus	7723-14-0	All concentrations	200g or mL
Phosphorus oxychloride**	10025-87-3	All concentrations	20Kg or L
Phosphorus pentachloride**	10026-13-8	All concentrations	20Kg or L
Phosphorus trichloride**	7719-12-2	All concentrations	2 Kg
Potassium chlorate	3811-04-9	Water-based solutions 10% or greater All other forms 65% or greater	2Kg or L
Potassium cyanide	151-50-8	All concentrations	1Kg or L
Potassium nitrate	7757-79-1	Water-based solutions 10% or greater All other forms 65% or greater	10Kg or L
Potassium perchlorate	7778-74-7	Water-based solutions 10% or greater All other forms 65% or greater	2Kg or L
Propoxur	114-26-1	All concentrations	100g or mL
Sodium azide	26628-22-8	At a concentration of 95% or higher	5Kg

* See SSAN section above for restrictions on ammonium nitrate.

** Also controlled under the Chemical Weapons (prohibition) Act (Cth) 1994 see chemical weapons (page 22).

SECURITY SENSITIVE AMMONIUM NITRATE, CHEMICALS OF SECURITY CONCERN AND CHEMICAL WEAPONS

Table 1: Chemicals of Security Concern (Continued)

Chemical	Cas number	Concentrations	University Prescribed Quantities per Laboratory
Sodium chlorate	7775-09-9	Water-based solutions 10% or greater All other forms 65% or greater	5Kg
Sodium cyanide	143-33-9	All concentrations	1Kg or L
Sodium fluoroacetate	62-74-8	All concentrations	500g or mL
Sodium perchlorate	7601-89-0	Water-based solutions 10% or greater All other forms 65% or greater	10Kg
Sodium nitrate	7631-99-4	Water-based solutions 10% or greater All other forms 65% or greater	2Kg
Strychnine	57-24-9	All concentrations	100g or mL
Sulfur dichloride**	10545-99-0	All concentrations	20Kg or L
Sulfur monochloride**	10025-67-9	All concentrations	20Kg or L
Sulphuric acid	7664-93-9	At a concentration of 30% or higher	50L
Terbufos	13071-79-9	All concentrations	100g or mL
Thallium sulphate	10031-59-1	All concentrations	100g or mL
Thionyl chloride**	7719-09-7	All concentrations	20Kg or L
Thiophosphoryl chloride	3982-91-0	All concentrations	200g or mL
Triethanolamine**	102-71-6	All concentrations	20Kg or L
Triethyl phosphite**	122-52-1	All concentrations	20Kg or L
Trimethyl phosphite**	121-45-9	All concentrations	20Kg or L
Zinc cyanide	557-21-1	All concentrations	1Kg or L
Zinc phosphide	1314-84-7	All concentrations	30Kg or L

Table 2 Chemical Weapons

The production, use, transfer or holding of certain substances are controlled under the Chemical Weapons (prohibition) Act (Cth) 1994. If you have any of the below chemicals please contact the HSW team for assistance with permit and notification requirements.

Chemical Weapons Schedule 1	CAS (Registry number)
O-Alkyl (<=C10, incl. cycloalkyl) alkyl (Me, Et, n-Pr or i-Pr)-phosphonofluoridates	
O-Isopropyl methylphosphonofluoridate	(107-44-8)
O-Pinacolyl methylphosphonofluoridate	(96-64-0)
O-Alkyl (<=C10, incl. cycloalkyl) N,N-dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidocyanidates	
O-Ethyl N,N-dimethyl phosphoramidocyanidate	(77-81-6)
O-Alkyl (H or <=C10, incl. cycloalkyl) S-2-dialkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonothiolates and corresponding alkylated or protonated salts	
O-Ethyl S-2-diisopropylaminoethyl methyl phosphonothiolate	(50782-69-9)
Sulfur mustards:	
2-Chloroethylchloromethylsulfide	(2625-76-5)
Mustard gas: Bis(2-chloroethyl)sulfide	(505-60-2)

Continued

SECURITY SENSITIVE AMMONIUM NITRATE, CHEMICALS OF SECURITY CONCERN AND CHEMICAL WEAPONS

Table 2 Chemical Weapons (Continued)

Chemical Weapons	
Schedule 1	CAS (Registry number)
Bis(2-chloroethylthio)methane	(63869-13-6)
Sesquimustard: 1,2-Bis(2-chloroethylthio)ethane	(3563-36-8)
1,3-Bis(2-chloroethylthio)-n-propane	(63905-10-2)
1,4-Bis(2-chloroethylthio)-n-butane	(142868-93-7)
1,5-Bis(2-chloroethylthio)-n-pentane	(142868-94-8)
Bis(2-chloroethylthiomethyl)ether	(63918-90-1)
O-Mustard: Bis(2-chloroethylthioethyl)ether	(63918-89-8)
Lewisites:	
Lewisite 1: 2-Chlorovinyldichloroarsine	(541-25-3)
Lewisite 2: Bis(2-chlorovinyl)chloroarsine	(40334-69-8)
Lewisite 3: Tris(2-chlorovinyl)arsine	(40334-70-1)
Nitrogen mustards:	
HN1: Bis(2-chloroethyl)ethylamine	(538-07-8)
HN2: Bis(2-chloroethyl)methylamine	(51-75-2)
HN3: Tris(2-chloroethyl)amine	(555-77-1)
Saxitoxin	(35523-89-8)
Ricin	(9009-86-3)
Schedule 1 Precursors	(CAS Registry number)
Alkyl (Me, Et, n-Pr or i-Pr) phosphonyldifluorides	
Methylphosphonyldifluoride	(676-99-3)
O-Alkyl (H or <=C10, incl. cycloalkyl) O-2-dalkyl (Me, Et, n-Pr or i-Pr)-aminoethyl alkyl (Me, Et, n-Pr or i-Pr) phosphonites and corresponding alkylated or protonated salts	
O-Ethyl O-2-diisopropylaminoethyl methylphosphonite	(57856-11-8)
Chlorosarin: O-Isopropyl methylphosphonochloridate	(1445-76-7)

Schedule 2	(CAS Registry number)
Amiton: O,O-Diethyl S-[2-(diethylamino)ethyl] phosphorothiolate	(78-53-5)
and corresponding alkylated or protonated salts	
PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-1-propene	(382-21-8)
BZ: 3-Quinuclidinyl benzilate (*)	(6581-06-2)

Continued

SECURITY SENSITIVE AMMONIUM NITRATE, CHEMICALS OF SECURITY CONCERN AND CHEMICAL WEAPONS

Table 2 Chemical Weapons (Continued)

Schedule 2 Precursors	(CAS Registry number)
Methylphosphonyl dichloride	(676-97-1)
Dimethyl methylphosphonate	(756-79-6)
O-Ethyl S-phenyl ethylphosphonothiolothionate	(944-22-9)
N,N-Dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidic dihalides	
Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl (Me, Et, n-Pr or i-Pr)-phosphoramidates	
Arsenic trichloride	(7784-34-1)
2,2-Diphenyl-2-hydroxyacetic acid	(76-93-7)
Quinuclidin-3-ol	(1619-34-7)
N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethyl-2-chlorides and corresponding protonated salts	
N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols and corresponding protonated salts	
N,N-Dimethylaminoethanol	(108-01-0)
and corresponding protonated salts	
N,N-Diethylaminoethanol	(100-37-8)
and corresponding protonated salts	
N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols and corresponding protonated salts	
Thiodiglycol: Bis(2-hydroxyethyl)sulfide	(111-48-8)
Pinacolyl alcohol: 3,3-Dimethylbutan-2-ol	(464-07-3)

Schedule 3	CAS Registry number)
Phosgene: Carbonyl dichloride	(75-44-5)
Cyanogen chloride	(506-77-4)
Hydrogen cyanide	(74-90-8)
Chloropicrin: Trichloronitromethane	(76-06-2)
Schedule 3 Precursors	**(CAS Registry number)**
Phosphorus oxychloride	(10025-87-3)
Phosphorus trichloride	(7719-12-2)
Phosphorus pentachloride	(10026-13-8)
Trimethyl phosphite	(121-45-9)
Triethyl phosphite	(122-52-1)
Dimethyl phosphite	(868-85-9)
Diethyl phosphite	(762-04-9)
Sulfur monochloride	(10025-67-9)
Sulfur dichloride	(10545-99-0)
Thionyl chloride	(7719-09-7)
Ethyldiethanolamine	(139-87-7)
Methyldiethanolamine	(105-59-9)
Triethanolamine	(102-71-6)

HAZARD MANAGEMENT

RISK ASSESSMENTS GENERAL INFORMATION

Exclusions

The chemical is **not required** to be separately risk assessed as the Safety Data Sheet (SDS) [formerly known as MSDS] lists the chemical hazards and controls.

The storage of a chemical is **not required** to be risk assessed **unless**:

- determined by the regulator (for example prohibited carcinogens); or
- the storage could pose a significant risk to health (e.g. amount exceeds the maximum quantity set by AS 2243.10 see Appendix A); or
- the chemical is an explosive/peroxidisable.

Task Chemical Risk Assessments

The tasks involving hazardous chemicals **are required** to be risk assessed. This risk assessment may take the form of individual task risk assessments through to one assessment for the laboratory/workshop where the controls are common, for more details please refer to the HSW Handbook Chapter Hazard Management.

The Code of Practice (Managing Risks of Hazardous Chemicals in the Workplace allows for three different types of risk assessments:

A basic risk assessment – allows the review of the label or the SDS and a decision that the chemical is controlled within existing laboratory controls (rules). If you are using a basic assessment model then your School (laboratory or workshop etc.) must have an overall risk assessment and controls (lab rules). The basic assessment can then determine whether the process or chemical fits into the general controls (lab rules).

A generic risk assessment – where similar/related activities or a defined area (e.g. laboratory/workshop etc.) can be included in one overarching risk assessment.

A detailed risk assessment must be conducted when–

- The use of chemicals which pose a significant risk to health or high risk chemicals have not been included/controlled in an appropriate generic risk assessment (e.g. carcinogens, mutagens, reproductive toxins, sensitisation agents, explosives, highly reactive, highly toxic, chemicals requiring health surveillance, or mixing of incompatible chemicals); or
- conducting a unique, or introducing a new process (one which does not fit the existing basic risk assessment and controls); or
- there are susceptible workers (e.g. pregnant, pre-existing medical conditions etc.).

Refer to the SDS for hazard associated with chemicals. The SDSs are available from the supplier, manufacturer of the chemical or via the Chemwatch SDS database. To assist with reading and understanding SDS refer to Understanding a Safety Data Sheet Information Sheet.

Please note that hazard management templates must use the University matrix and meet the intent of the HSW Handbook Chapter Hazard Management.

HAZARD MANAGEMENT

FACTORS TO CONSIDER

The health hazards from handling any particular hazardous chemical will vary with each chemical and the way in which the chemical is used. Factors such as route of exposure, type of disease or injury, the relative toxicity and concentration of the hazardous chemical are required to be considered in any assessment. When novel chemicals are involved in the process then the risk assessment shall take into account known similar chemicals and parallel chemical structures.

To determine the level of risk, it is necessary to draw together the information gathered about the hazardous chemical/s used and the way it is used in the workplace. This will involve considering:

a. the nature and severity of the hazard for each hazardous chemical. This information should be available from the label and the safety data sheet (SDS) in most cases.
b. the degree of exposure of workers, taking account of:
    - actual processes and practices in the workplace where the chemicals are used
    - the quantities of chemicals being handled
    - work practices and procedures and the way individual workers carry out their daily tasks
    - whether existing control measures adequately control exposure.
c. routes of entry; the physical form and concentration; who could be exposed and when this could occur; how often is exposure likely to occur and for how long; what the estimated exposure to hazardous chemicals is.

If you require assistance/further information, please contact the HSW Team

Table 1 An example of typical chemical task hazards

Chemical attributes		**Asphyxiant Gas**	
☐	Inherent hazardous properties for the chemicals e.g. flammable, explosive, dust, corrosive, compressed and toxic gas.	☐	Gaseous hazard e.g. toxic or asphyxiant gases such as nitrogen, dry ice, carbon dioxide.
Exposure to hazardous chemical		☐	Gaseous hazard being transported e.g. transporting liquid nitrogen, dry ice inside a vehicle or lift.
☐	Easily airborne or be can be breathed in? e.g. fine powder; aerosol; toxic or corrosive fumes or chemicals are being sprayed, nanomaterials.	**General hazards**	
		☐	Fatigue
☐	Eye or skin contact	☐	Cold object (cryogenic) or hot objects (ovens, water baths, autoclave, boiler).
☐	Health surveillance list (see Air and health monitoring Information Sheet).		
☐	Controls unavailable (no fume cupboard, etc.).	☐	Radiation e.g. x-ray, sealed/unsealed, or artificial UV Sources.
☐	Exposure exceeding exposure standards.		
☐	Violent physical or chemical reaction (produces/emits toxic substances).	☐	Biological hazard e.g. diagnostic human or animal body fluids, infectious material.
Explosive/Flammable		☐	Sharp object e.g. needles, scalpel, razor blades.
☐	Explosive or flammable due to the process undertaken? e.g. mixing of incompatible chemicals, incorrect storage, ignition of material (including naked flame), gas, vapour, pressure build up.	☐	Manual handling/ergonomics hazards e.g. poor lighting, insufficient space, poor seating design, reaching, bending twisting, lifting, pulling, pushing, repetitive motions (pipetting), microscope work.
☐	Environment will increase fire or explosion if an ignition source is introduced? e.g. explosive atmosphere, combustible dust.		
☐	Incorrect fire extinguishers or it is not easily accessible.		

HAZARD MANAGEMENT

FOR HIGHLY TOXIC, CARCINOGENIC OR CHEMICALS REQUIRING HEALTH SURVEILLANCE

For highly toxic, carcinogenic or chemicals requiring health surveillance (for list refer to Air and Health Monitoring Information Sheet or SDS) you will need to determine if there is **a significant risk to health**.

The level of risk to workers from exposure to these chemicals depends on the hazards as well as the frequency, duration and amount of exposure (the dose). E.g. if a worker is frequently using a chemical the likelihood of exposure could increase and if the chemical is highly toxic then the consequences will be increased from that exposure, therefore the controls will need to be higher.

- the nature and severity of the hazard for each hazardous chemical. This information should be available from the label and the safety data sheet (SDS) in most cases.
- the degree of exposure of workers, taking account of:
    - actual processes and practices in the workplace where the chemicals are used.
    - the quantities of chemicals being handled.
    - work practices and procedures and the way individual workers carry out their daily tasks.
    - whether existing control measures adequately control exposure.

The outcome from this assessment is either **a significant risk to health** or not a significant risk to health If there is a significant risk (this means that workers are likely to be exposed at a level that could adversely affect their health) then health monitoring **IS REQUIRED** in line with the requirements of WHS Regulations 2012 (SA) (contact the HSW team if you requires assistance with this process)**.**

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

The labelling requirements do **not** apply to:

- hazardous chemicals which are used in household quantities and consistent with domestic use,
- hazardous chemicals which are placed into a container and used immediately.

General Labelling requirements:

Please also refer to Labelling transition arrangements Information Sheet

- ☐ The manufacturer's labels must not be defaced, including writing on them. It is, however, acceptable to write the date and tare weight on a manufacturer's label in an appropriate place such that none of the original information is obscured.
- ☐ The lids of containers of decanted substances or mixtures must not be the sole label as the lid will become separated from the container.
- ☐ Chemicals in unlabelled containers must not be left unattended.
- ☐ Containers must not be labelled using handwriting directly onto the container. Except where labels are printed directly onto the container by the manufacturer.
- ☐ The label must be a separate item composed of a suitable material (usually paper), and appropriately fixed.
- ☐ To facilitate identification of chemicals and their relevant hazards, it is highly recommended that all labels be printed in colour and best practice is the use of Chemwatch labels.
- ☐ Food and drink used for research purposes must be labelled **"for research purposes only"** and **"not for human consumption"**
- ☐ If the chemical is unknown then it is to be marked with **'caution do not use: unknown substance'**, stored in isolation until contents are established (then labelled) and if contents cannot be identified then it should go to waste disposal.
- ☐ If the chemical container size is too small for the details below, then a label can be attached to the rack, box, shelf, or other container in which the chemical is stored.

Labels

Until 31 December 2016 all containers (this includes original, decanted or mixtures) must be labelled in accordance with the relevant requirements *of NOHSC:2012 (1994) National Code of Practice for Labelling of Workplace Substances* (refer to Appendix G of the NOHSC document) **or** with the GHS and WHS Regulations 2012 (SA) Part 2 Schedule 9. After this date then labelling must comply with GHS and WHS Regulations 2012 (SA) (Note: You will **not be required to relabel all existing chemicals** as at 31 Dec 2016 however all solutions made after this date will need to be labelled correctly).

NOHSC:2012(1994) guideline

The label shall, at a minimum, contain the following information (which is legible and in English):

- ☐ Name of chemical - common name, formal name, or both. If the substance contains more than one chemical, all chemicals must be listed (not abbreviations unless there is a posted list of all abbreviations within your laboratory).
- ☐ Concentration: percentage or molarity of the chemical.
- ☐ Risk phrases- a general description of the physicochemical, environmental & health hazards of a substance, e.g. causes burns, irritating to the skin, toxic by inhalation.
- ☐ Safety phrases- information on safe storage, handling, disposal, PPE & first aid, e.g. keep container dry, wear suitable gloves, avoid contact with eyes.
- ☐ If hazardous substances are also classified as Dangerous Goods (DG) they must meet the requirements of DG legislation (i.e. the label must indicate which DG class the chemical belongs to).
- ☐ The full name (or staff/student number) of the worker who made or decanted the chemical.
- ☐ The date that the chemical was opened (if the chemical is peroxidisable).

GHS and WHS Regulations 2012 (SA) Schedule 9.

Whilst the manufacturer or supplier of chemicals are required to have extensive labelling the label for a **decanted chemical**, or **research chemical,** or **sample for analysis** shall at a minimum:

- ☐ be legible and in English,
- ☐ have the product identifier (name or number found on the supplier's label or in the SDS),
- ☐ have a pictogram or hazard statement consistent with the chemical,
- ☐ the full name (or staff/student number) of the worker who made or decanted the chemical, and
- ☐ the date that the chemical was opened (if the chemical is peroxidisable).

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

Labels (continued)

A label for **waste chemicals** shall at a minimum:

- be legible and in English,
- have the product identifier (name or number found on the supplier's label or in the SDS), and
- have a pictogram or hazard statement consistent with the chemical.

A label for **explosive chemicals** shall at a minimum:

- be legible and in English,
- have the proper shipping name,
- have a pictogram consistent with the chemical,
- have the hazard statement consistent with the chemical, and
- have the precautionary statements consistent with the chemical, and
- the full name (or staff/student number) of the worker who has responsibility for the chemical.

A label for **nanomaterials (**when the hazards are known) shall at a minimum:

- be legible and in English,
- contain the product identifier (name or number found on the supplier's label or in the SDS),
- have a pictogram or hazard statement consistent with the chemical, and
- the full name (or staff/student number) of the worker who made, collected or decanted the nanomaterial.

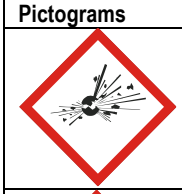
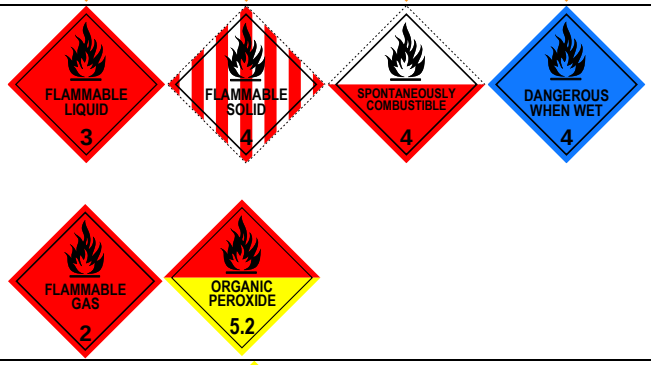
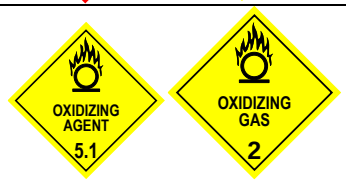
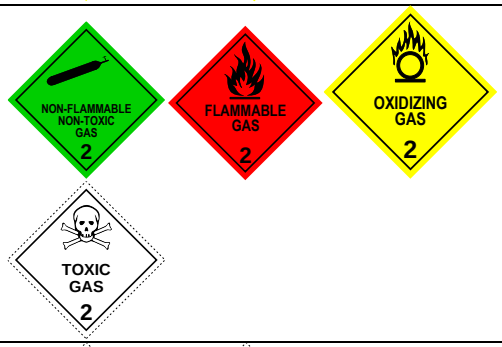
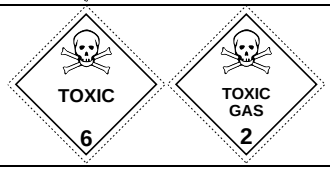
A label for **nanomaterials (**when the hazards are not fully characterised) shall at a minimum:

- be legible and in English,
- A statement of hazard "contains engineered/manufactured nanomaterials. Caution Hazard unknown", and
- the full name (or staff/student number) of the worker who made, collected or decanted the nanomaterial.

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

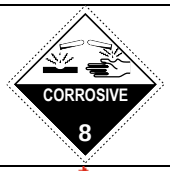
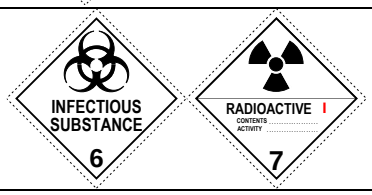
Conversion of DGC to GHS Classes

The table below compares hazard pictograms from the GHS with the corresponding ADG Code class labels (Labelling of Workplace Hazardous Chemicals Code of Practice).

Hazard Pictograms	GHS Hazard	Dangerous Goods class labels (pictograms)	Dangerous goods classes
	Explosives Self-reactives Organic peroxides		Explosive
	Flammables Self-reactives Pyrophorics Self-heating Emits flammable gas in contact with water Organic peroxides		Flammability (Liquid, Solid or Gas) Pyrophoric, Emits Flammable Gas Organic Peroxide
	Oxidisers		Oxidiser Oxidising gas
	Gases under pressure		Non-toxic non-flammable gas, flammable gas, oxidising gas, toxic gas
	Acute toxicity		Acute toxicity Acute Toxic gas
	Acute toxicity Skin irritants Eye irritants Skin sensitisers	No equivalent	
	Carcinogens Respiratory sensitisers Reproductive toxicants Target organ toxicants Germ cell mutagens	No equivalent	

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

Conversion of DGC to GHS Classes (continued)

Hazard Pictograms	GHS Hazard	Dangerous Goods class labels (pictograms)	Dangerous goods classes
	Eye corrosion Skin corrosion Corrosive to metal		Corrosive to metals
	Aquatic toxicity. Not covered within the scope of workplace hazardous chemicals requirements		Environmental hazard
No equivalent hazard pictogram			Miscellaneous dangerous goods
Not covered within the scope of workplace hazardous chemicals requirements			Infectious or Radioactive

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

Transportation Labelling and Vehicle Placarding

For transportation of hazardous chemicals the outer label must comply with ADG Code. The GHS label is still suitable for the inner label of the chemical but for the external labelling the package must have the correct dangerous good diamond.

To identify the dangerous goods code of the chemical you are transporting refer to the Safety Data Sheet (SDS).

Vehicles must display a placard when the load meets any of the following levels:

- Any hazardous chemical in a receptacle of individual capacity of > 500 kg or L*; or
- ≥ 1000 kg or L aggregate hazardous chemical; or
- ≥ 250 kg or L aggregate hazardous chemical where the load includes any quantity of:
    - DGC Division 2.1/ GHS Flammable gas (other than aerosols)

    - DGC Division 2.3/GHS Acute toxicity and skin corrosion; or

- DGC Packing Group I/ GHS Explosives, self-reactives, organic peroxides of any class.

- Any quantity of DGC Division 6.2 Category A;
- ≥ 10 kg/L of Division 6.2 other than Category A

* Includes tank vehicles, portable tanks, pressure drums, and bulk containers.
≥ means greater than or equal to
> means greater than

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

Chemical register

The chemical register is required for all chemicals (including gas cylinders and radioactive materials [unsealed isotopes]) held in the workplace (WHS Regulations 2012 (SA)). The register is used for emergency services, Dangerous Goods licences and Controlled Substances licences. This register must be held in a format in which the emergency services can gain access to the information (on a shared server or on Chemwatch)
This register must also be available if requested by the University or external organisation.

The Chemical Register must at a minimum contain the following (Note: the register can contain extra information if required for other purposes and there is no defined format).

Chemical Name - Use the common name if it exists, and please put the name of the chemical before the concentration if applicable
Dangerous Goods/GHS information – You must record one or both of the below classifications on the register: **(1) GHS Class and Category (**This is the Class and the Category under the Globally Harmonized system of classification and labelling of chemicals third edition 2009 e.g.Flammable Liquid Category 2); and/or **(2) Primary DGC- DGC Class (**These are solids, liquids or gases that have been classified as dangerous under the *Australian Code for the Transport of Dangerous Goods by Road or Rail* [the ADG code]).
Building
Room
Maximum Volume
Controlled Substance - Use the appropriate S number such as **S4**, **S8** etc.
Container Unit

a) The register must contain all hazardous chemicals, controlled substances and unsealed radiation sources (including mine tailings) and nanomaterials.
b) There is no need to record chemicals which are cleaning agents unless they are in Industrial quantities of (ie 20L and above).
c) There is no need to record chemicals which are normal office supplies e.g. liquid paper, white board cleaner, printer cartridges etc.
d) There is no need to record chemicals which are under 10g or 10mL; unless it is:
   - a controlled substance class S8 or S9; or
   - extremely hazardous i.e. are category 1 (GHS); or
   - a restricted or prohibited carcinogen (see Appendix C); or
   - a chemical of security concern or chemical weapon (see Appendix D); or
   - nanomaterial; or
   - radioactive material.
e) When updating registers there is a requirement to
   - record all new chemicals and remove any chemicals which you no longer have;
   - change amounts only if they have changed more than 1L or Kg.

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

Building Manifest and Placarding

Manifests under WHS Regulations 2012 (SA) are only required if the building exceeds the regulated quantities. Below outlines the placard and manifest threshold quantities.

If you think you may be exceeding the regulated quantities in any building and you are required to prepare a chemical manifest and emergency plan, please contact the HSW team for assistance.

As per the notification from SafeWorkSA (dated 20 June 2014) the requirement for the University to notify the regulator regarding holdings exceeding manifest quantities below (due to come into effect 1 Jan 2016) has been delayed and the Dangerous Substances licensing will continue to operate. This however will not affect the University's requirement to placard or manifest if the building exceeds the levels below.

Item Column 1	Description of hazardous chemical Column 2	 Column 3	Placard quantity Column 4	Manifest quantity Column 5	ADG Code Classification
1	**Flammable gases**	**Category 1**	**200L** (note 1G sized cylinder is approx. 48 L)	**5000L**	**2.1**
2	**Gases under pressure**	with acute toxicity, categories 1, 2, 3 or 4 Note—Category 4 only up to LC50 of 5000 ppmV	50L	500L	2.3
3		with skin corrosion categories 1A, 1B or 1C	50L	500L	2.3
4		aerosols	5000L	10 000L	2.1 or 2.2
5		not specified elsewhere in this Table	1000L	10 000L	2.2
6	**Flammable liquids**	Category 1	50L	500L	3 (PG I)
7		Category 2	250L	2500L	3 (PG II)
8		Category 3	1000L	10 000L	3 (PG III)
9		Any mix of chemicals from Items 6 – 8 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000L	10 000L	All 3
10		Category 4	10 000L	100 000L	*Note 3*
11	**Self-reactive substances**	Type A	5kg or 5L	50kg or 50L	GTDTBT – *Note 4*
12		Type B	50kg or 50L	500kg or 500L	4.1 (Type B)
13		Type C-F	250kg or 250L	2500kg or 2500L	4.1 (Type C-F)
14	**Flammable solids**	Category 1	250kg	2500kg	4.1 (PG II)
15		Category 2	1000kg	10 000kg	4.1 (PG III)

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

Building Manifest and Placarding (continued)

Item Column 1	Description of hazardous chemical Column 2	 Column 3	Placard quantity Column 4	Manifest quantity Column 5	ADG Code Classification
16		Any mix of chemicals from Items 12 - 15 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L	All 4.1
17	Pyrophoric liquids and pyrophoric solids	Category 1	50kg or 50L	500kg or 500L	4.2 (PG I)
18	Self-heating substances and mixtures	Category 1	250kg or 250L	2500kg or 2500L	4.2 (PG II)
19		Category 2	1000kg or 1000L	10 000kg or 10 000L	4.2 (PG III)
20		Any combination of chemicals from Items 17 to 19 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L	All 4.2
21	Substances which in contact with water emit flammable gas	Category 1	50kg or 50L	500kg or 500L	4.3 (PG I)
22		Category 2	250kg or 250L	2500kg or 2500L	4.3 (PG II)
23		Category 3	1000kg or 1000L	10 000kg or 10 000L	4.3 (PG III)
24		Any combination of chemicals from Items 21 to 23 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L	All 4.3

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

Building Manifest and Placarding (continued)

Item Column 1	Description of hazardous chemical Column 2	 Column 3	Placard quantity Column 4	Manifest quantity Column 5	ADG Code Classification
25	Oxidising liquids and oxidising solids	Category 1	50kg or 50L	500kg or 500L	5.1 (PG I)
26		Category 2	250kg or 250L	2500kg or 2500L	5.1 (PG II)
27		Category 3	1000kg or 1000L	10 000kg or 10 000L	5.1 (PG III)
28		Any combination of chemicals from Items 25 to 27 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L	All 5.1
29	Organic peroxides	Type A	5kg or 5L	50kg or 50L	GTDTBT – Note 4
30		Type B	50kg or 50L	500kg or 500L	5.2 (Type B)
31		Type C to F	250kg or 250L	2500kg or 2500L	5.2 (Type C-F)
32		Any combination of chemicals from Items 30 and 31 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L	All 5.2
33	Acute toxicity	Category 1	50kg or 50L	500kg or 500L	6.1 (PG I) – Note 5
34		Category 2	250kg or 250L	2500kg or 2500L	6.1 (PG II)
35		Category 3	1000kg or 1000L	10 000kg or 10 000L	6.1 (PG III)
36		Any combination of chemicals from Items 33 to 35 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L	All 6.1
37	Skin corrosion	Category 1A	50kg or 50L	500kg or 500L	8 (PG I)
38		Category 1B	250kg or 250L	2500kg or 2500L	8 (PG II)
39		Category 1C	1000kg or 1000L	10 000kg or 10 000L	8 (PG III)

LABELLING, PLACARDING, REGISTERS AND MANIFESTS

Building Manifest and Placarding (continued)

Item Column 1	Description of hazardous chemical Column 2	 Column 3	Placard quantity Column 4	Manifest quantity Column 5	ADG Code Classification
40	Corrosive to metals	Category 1	1000kg or 1000L	10 000kg or 10 000L	8 (PG III)
41		Any combination of chemicals from Items 37 to 40 where none of the items exceeds the quantities in columns 4 or 5 on their own	1000kg or 1000L	10 000kg or 10 000L	All 8
42	Unstable explosives		5kg or 5L	50kg or 50L	goods too dangerous to be transported GTDTBT – Note 4
43	Self-reactive substances Organic peroxides Unstable explosives goods too dangerous to be transported	Any mix of chemicals from Items 11, 29 and 42 where none of the items exceeds the quantities in columns 4 or 5 on their own	5kg or 5L	50kg or 50L	goods too dangerous to be transported GTDTBT – Note 4

Notes

1. For the purposes of this table, if a flammable liquid category 4 is used, handled or stored in the same spill compound as one or more flammable liquids of categories 1, 2 or 3, the total quantity of flammable liquids categories 1, 2 or 3 must be determined as if the flammable liquid category 4 had the same classification as the flammable liquid in the spill compound with the lowest flash point.
2. For the item 2 in the table, Gases under pressure with acute toxicity category 4 only applies up to a LC_{50} of 5000 ppmV. This is equivalent to Division 2.3 dangerous goods under the ADG Code.
3. Only flammable liquids with a flash point of up to 93°C are classified as hazardous chemicals under the WHS Regulations 2012 (SA) and the GHS. C1 combustible liquids with flashpoints between 93°C and 150°C are not classified as hazardous workplace chemicals.
4. GTDTBT means goods too dangerous to be transported.
5. Division 2.3 under the ADG Code includes gases and vapours classified as acutely toxic (categories 1, 2 and 3) and gases which are corrosive to skin (category 1).

TRANSPORTATION OF CHEMICALS

Outside the University

- ☐ Read the SDS before leaving and take the SDS and absorbent spill kit.
- ☐ The load is to be bunded and segregated. The bunding is to be enough to contain the total amount in the container(s) being transported and the packaging is in a way that discourages breakage of containers.
- ☐ All loads are to be secured (large amounts must also be transported behind a cargo barrier).
- ☐ Transportation of large quantities of chemicals may require placarding (refer to Appendix F Labelling, Placarding, Manifests and Registers).

  If chemicals or biological samples are to be transported by air refer to CASA* guidelines.
- ☐ If chemicals are being transported by post, refer to Australia Post guidelines.
- ☐ There are specific requirements for the transportation by road of liquid nitrogen and dry ice. Refer to Cryogenic Substances Information Sheet.

* CASA's primary function is to conduct the safety regulation of civil air operations in Australia.

Within the University

Transportation by hand

Use carriers, baskets or trolleys to carry chemicals, where possible.

If you are picking up chemicals from the chemical store ensure you have suitable clothes, PPE and footwear in accordance with the local rules.

When large bottles of corrosive liquids, solvents, or other hazardous liquids are transported without a trolley or carrier/basket

- ☐ One bottle should be carried at a time;
- ☐ The bottle should be carried with both hands, one on the neck of the bottle and the other underneath;
- ☐ Do not hook a finger through the glass ring on top of the bottle, allowing it to dangle while being transported;
- ☐ Never carry or attempt to pick up a bottle by the cap.

Transportation by trolley

- ☐ Trolleys should be stable under load and have wheels large enough to negotiate uneven surfaces (such as expansion joints and floor drain depressions) without tipping or stopping suddenly;
- ☐ Bottles should not be placed near the edge of the trolley;
- ☐ Bottles should not be touching each other or other glassware during transport;
- ☐ Caution must be observed when rolling the trolley over door sills or other possible obstructions; and
- ☐ Incompatible chemicals should not be transported on the same trolley.

Lifts and Stairs

- ☐ Freight-only lifts should be used if possible when transporting chemicals to avoid exposure to persons in passenger lifts.
- ☐ Lifts which can be locked out are to be used where possible.
- ☐ If using stairs ensure that you are not rushing, you can see your feet and that you have one free hand.

EMERGENCIES AND CONTINGENCY ARRANGEMENTS

General

Basic prevention strategies can reduce the severity of an emergency situation.
This can be achieved by:

- Reducing the holding of chemicals (especially flammable liquids and gases);
- Ensuring that incompatible chemicals do not mix;
- Reducing the fuel load from other sources.
- Areas holding hazardous chemicals must develop local emergency procedures in the event of a spill or leak of a chemical, fire, explosion, or other emergency situation.
- Workers are to be trained on how to respond to an emergency. This training might include first response actions or how to raise an alarm and evacuation procedures, for example:
  - What to do in a minor and major spill
  - How to use a spill kit and safety shower/eye wash;
  - How to trigger alarm/duress system;
  - The role of security (they will coordinate the Emergency Services you will need to give them the building, room, nature and exact location within the room of the spill)
  - Reporting process for an incident.

Emergency Equipment

Each area using hazardous chemicals shall have the following (according to the level of hazard):

- Accessible safety shower and eye wash conforming to AS 4775 Emergency eyewash and shower equipment;
- Fire extinguisher (suitable for the chemicals);
- Respiratory protection (see note below); and
- Alarm or duress system and/or telephone for emergency use.

Note: Respiratory protection is required for some chemicals in the event of a spill. The University recommends that areas use Emergency Services for large or highly hazardous chemical spill cleanup, rather than risking the health of workers. Respiratory protection requires training from the supplier and regular maintenance and must not be used by untrained workers. Respirators should not be used by workers who have facial hair.

EMERGENCIES AND CONTINGENCY ARRANGEMENTS

CHEMICAL EMERGENCIES AND CONTINGENCY ARRANGEMENTS (continued)

In the Event of Exposure

First aid

A first aider should be available during working hours and University Security is available 24 hours a day. Below are general first aid treatments, however for specific treatments consult the SDS.
Please note that if the first aider or security assesses the situation to be beyond their capability or it is foreseeable that they will become contaminated then an ambulance should be called.

a. **Eye Contact**
   Promptly flush eyes with water for a prolonged period (15 minutes) and seek medical attention (take SDS with you).
b. **Ingestion**
   The treatment for ingestion of a chemical will depend on what chemical has been ingested. Consult the SDS for the appropriate action, seek medical attention (take SDS with you). Note that it is against University policy to eat and drink in the laboratory and to pipette chemicals by mouth.
c. **Skin Contact**
   Promptly flush the affected area with water and remove any contaminated clothing. If symptoms persist after washing, seek medical attention (take the SDS with you).

Note-for some chemicals (e.g. hydrofluoric acid) medical attention must be sought even if symptoms are not apparent, due to a possible delay in effects.

CHEMICAL DISPOSALREQUIREMENTS

Permissible Chemical Disposal into the Environment (i.e. down the sink)

In the interest of environmental responsibility, disposal of any chemicals either down the sink or through evaporation in a fume cupboard is not recommended.

If, however, you do dispose of chemicals down the sink, the Environmental Protection Authority (EPA) requires that they are only:

- ☐ Non-hazardous chemicals which are in aqueous solutions within the pH range of 6 to 10.
- ☐ Do not discharge to the sewer:
  - any concentrated acids or bases;
  - highly toxic, malodorous (bad odour), or lachrymatory (produces tears) substances;
  - any substances which might interfere with the biological activity of waste water treatment plants,
  - any chemical which could create fire or explosion hazards,
  - any chemical which could cause structural damage or obstruct flow

Other Disposal Methods

- ☐ All out-of-date chemicals shall be disposed of on a periodic basis via the Cleaning and Waste Collection Request Form to reduce the overall hazard potential and minimise inventory tracking and updating.
- ☐ Peroxide formers and others that degrade over time must be dated when they are opened (or purchased) and must be disposed of 12 months after opening or 18 months after date of purchase (refer to the Peroxidisables and Explosives information sheet).
- ☐ Explosives (Dangerous Goods Class 1/GHS Explosives) are not collected by the current chemical waste service provider, for companies who dispose of this type of waste please refer to HSW contacts.
- ☐ Radioactive substances (Dangerous Goods Class 7) are not collected by the current chemical waste service provider for disposal methods please refer to HSW Handbook Chapter Radiation Safety Management.
- ☐ Gas cylinders are not collected by the current chemical waste service provider for disposal methods please refer to the Gas Cylinders and Compressed Gases Information Sheet.
- ☐ Nanomaterials for disposal please refer to the Nanomaterials Information Sheet.

CHEMICAL DISPOSALREQUIREMENTS

Chemical Waste Collection Procedure

In University buildings

All requests for waste disposal should be submitted on the Cleaning and Waste Collection Request Form on the Campus Services website. (When this form is completed and submitted it is sent to the Campus Services at the relevant campus where a record of the request is maintained and a copy sent to the relevant chemical waste service provider.)
The chemical waste service provider receives the request and will contact the person nominated on the form to obtain a copy of the waste manifest. If the requester does not have a manifest the chemical waste service provider will provide a blank for them to complete.

Commercial buildings

The first point of contact for requests is the Building Facilities Manager.

The Building Facilities Manager will submit the request to the chemical waste service provider. The chemical waste service provider receives the request and they will contact the person requesting waste collection to obtain a copy of the waste manifest. If the requester does not have a manifest the chemical waste service provider will provide a blank manifest for them to complete.