Hobart Campus Chemistry Building

SAFETY MANUAL
http://www.utas.edu.au/chemistry

Chemistry (Hobart campus)
Central Science Laboratory (CSL)
Pharmacy

Issued by: Hobart Chemistry Building Safety Committee

February 2016
## EMERGENCY TELEPHONE NUMBERS

**Fire** 0 - 000  Ask for Fire Brigade  
**Police** 0 - 000  Ask for Police  
**Ambulance** 0 - 000  Ask for Ambulance

**NOTE:** When using this number you may have to wait a few moments before getting a response. **DO NOT HANG UP PREMATURELY.**

### University Security
7600

When emergency services are to be contacted you must do so either via the University’s Security number and advise them of the situation (your name, section/building, floor and room number, and the problem) and the emergency service required, or if you contact the emergency service directly, you must immediately notify University Security of the situation. Security will then meet the emergency personnel at the main entrance and direct them to your location.

### Chemistry Building Manager:
Mr Murray Frith, x2147  
0 – 0417 153-320 (mobile - all hours)  
After hours: 0 – 6248-8582

### Additional after-hours contacts:
Dr Peter Traill, x2200 (business hours),  
0 – 6248-5341 (after hours), or  
0 – 0418 546-815 (mobile - all hours)  
Dr Jason Smith, x 2182 (business hours)  
0 - 0402 931-474 (mobile - all hours), or  
0 – 6227-1106 (after hours)  
Dr Thomas Rodemann, x7192 (business hours)  
0 - 0403 273-627 (mobile - all hours), or  
0 – 6228-3006 (after hours)

### University Medical Centre
x2102

### Grosvenor St Medical Centre
0 - 6224 1944

### Hospital:
0 - 6222 8308

### Poison Centre
0 - 13 11 26

### First Aid Officers
  - x2184 Dr Andrew Grosse, Chemistry (room 418/420)  
  - x7192 Dr Thomas Rodemann, CSL (room 447)  
  - x2168 Mr Graham Meredith, Chemistry (room 309/420)  
  - x2164 Mr Brendon Schollum, Chemistry (room 310/420)  
  - x7821 Dr James Horne, CSL (room 338)  
  - x2146 Dr Karsten Goemann, CSL (room 255)  
  - x2147 Mr Murray Frith, Chemistry (room 202)  
  - x2194 Mr Tony Whitty, Pharmacy (room 2019)  
  - x2200 Dr Peter Traill, Pharmacy (room 2003)  
  - x2193 Ms Melissa Aubrey, Pharmacy (room 2028)  
  - x2198 Mrs Sandy Holmes, Pharmacy (room 2004)  
  - x1966 Ms Juanita Westbury, Pharmacy (room 4012)  
  - x7864 Mr Paul Waller, CSL (room 102)

### University WHS Unit Officers
x7509 Mr Nigel Evans  
X6251 Clodagh Moy

### Responsible Officers for Chemistry:
x2182 Assoc. Prof Jason Smith,  
Head, Discipline of Chemistry

### Responsible Officer for Pharmacy:
x2197 Assoc Prof Luke Bereznicki,  
Assoc. Head Pharmacy

### Responsible Officer for Central Science Laboratory:
x2055 Dr Evan Peacock, Director CSL

### Responsible Officer for ACROSS/PARC:
x2179 Prof Brett Paull, Director ACROSS

Reproduction of material in this manual for legitimate safety purposes is expressly permitted. Enquiries concerning this safety manual should be addressed to:  
The Chairman, Chemistry Building Safety Committee  
Central Science Laboratory,  
University of Tasmania  
Private Bag 26, Hobart, Tasmania, 7001, Australia  
Ph: (03) 6226 7192, Fax: (03) 6226 2494, Email: Thomas.Rodemann@utas.edu.au

Hobart Chemistry Building Safety Committee
Use of Schlenk vacuum lines
Electricity, gas and water
Radiation hazards
NMR magnetic field
BioSafety and Biological hazards
Manual handling
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Field work
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Hobart Chemistry Building Safety Committee
This safety manual is intended as a guide for your personal safety and well-being, and for the safety of your co-workers.

The University Intranet site for WHS (http://www.utas.edu.au/work-health-safety) should be consulted for additional information.

To comply with Tasmanian WHS regulations, you must have read it and participated in a workplace safety induction with an authorised staff member of the Chemistry Building before commencing work.

Disclaimer

It cannot be assumed that all necessary warnings and precautionary measures are contained in this document. This manual serves merely as a starting point for developing good practices. The information is believed to be correct but does not purport to be all-inclusive and should be used only as a guide.
GENERAL SAFETY INFORMATION

The various administrative units resident within the Chemistry Building are committed to continuously improving the management and standards of occupational health and safety within the workplace. They will strive as far as reasonably practicable to protect the health and safety of their employees, students, contractors and visitors.

RESPONSIBILITY


Under this legislation there is a very strong emphasis on the concept of “duty of care” where the individual has a duty to care for the health and safety of themselves and others in their workplace.

Officers

The Vice-Chancellor is committed to, and has ultimate responsibility for, the effective implementation of this Work Health and Safety Policy.

Members of Council, Deans of Faculties, Heads of Centres, Directors/Principals of Institutes, Heads of Divisions and Sections and Members of Boards having strategic management responsibility are considered to be Officers pursuant to Section 27 of the Act. They are responsible within their area for the following:

- ensuring the University meets its primary duty of care responsibilities as a person conducting a business or undertaking (PCBU) under Section 19 of the Act;
- ensuring effective resourcing and implementation of the University’s Work Health and Safety Policy and the University’s Work Health and Safety Management System;
- ensuring compliance with applicable University policies, minimum standards and procedures;
- providing the leadership necessary to raise an organisation-wide safety culture; and
- ensuring that within their workplace there is appropriate planning; development, implementation and monitoring of Work Health and Safety programs specific to the needs of the area.

Workers

Management and supervisory staff (which includes those with responsibility for students) have responsibilities as workers under the Act.

All University workers (employees, contractors, students and volunteers) and all other persons (including visitors) are, under S28 or S29 of the Act to:

- take reasonable care for their own health and safety;
- take reasonable care that their acts or omissions do not adversely affect the health and safety of other persons; and
- comply, so far as they are reasonably able, with any reasonable instruction that is given to allow the university to comply with the Act.

In addition, workers are to:

- co-operate with any reasonable policy or procedure relating to health or safety at the workplace that has been notified to them.

Health Safety Representatives (HSR)

Under Section 50 of the Act, one or more Health and Safety Representatives may be elected to represent workers who carry out work for the University.

Power and Functions

Section 68 of the Act defines the powers and functions of a Health and Safety Representative. Broadly, these include:

- representing the workers in the work group in matters relating to work health and safety;
• monitoring the measures taken by the University in compliance with the Act in relation to workers in the work group;
• investigating complaints from members of the work group relating to work health and safety;
• inquiring into anything that appears to be a risk to the health or safety of workers in the work group, arising from the conduct of the University.

Activities
Section 68(2) of the Act, defines what an HSR may do in exercising a power, or performing a function. Broadly, this includes:
• inspecting the workplace or part of the workplace at which a worker in the work group works;
• accompanying an inspector during an inspection of the workplace;
• being present at an interview concerning work health and safety;
• receiving information concerning the work health and safety of workers in the work group.

Implementation
Health and Safety Representatives are expected to:
• Participate in WHS activities:
• promote health and safety in their workgroup by encouraging safe work practices, identifying workplace hazards and, in consultation with relevant personnel, address the resolution of these hazards;
• assist with WHS functions in their work area such as incident investigations, identification of hazards, risk assessments and implementation of risk control measures;
• attend Health Safety Representative training in accordance with the legislation (i.e. within 6 months of appointment);
• attend any internal WHS training as organised by the WHS Unit;
• Consult and communicate: attend meetings of Health Safety Representatives and participate in discussion on WHS matters;
• represent staff from their designated work area on WHS matters;
• report back to workers on WHS issues in their work area.
• elect one or more HSRs to the WHS Committee.

Health and Safety Representatives (HSRs)
Chemistry, Hobart:  Mr Brendan Schollum  Ext. 2153/2164
                    Mr Yan Li  Ext. 6669
Chemistry, Launceston:  Ms Catherine Tyson  Ext. 3832
Pharmacy:  Dr Peter Traill  Ext. 2200
CSL:  Dr Thomas Rodemann  Ext. 7192

University Work Health and Safety Organisation:
The Work Health and Safety Committee
The Work Health and Safety Committee supports the University community by fulfilling its responsibilities in accordance with the Work Health and Safety Policy. The Committee provides the strategic Work Health and Safety framework that will allow Officers to fully achieve Work Health and Safety statutory compliance. The Work Health and Safety Policy Committee reviews Work Health and Safety policies, procedures, and minimum compliance standards and makes recommendations to the Vice-Chancellor.
The Work Health and Safety Unit provides specialist advice to assist Officers with their Work Health and Safety Policy compliance and the implementation of the Work Health and Safety Management System.

The Work Health and Safety Unit

Hobart Chemistry Building Safety Committee
• oversee the University’s compliance with WHS legislative requirements, in particular the Work Health and Safety Act 2012, the Work Health and Safety Regulations 2012 and Codes of Practice including:
  • WHS systems support:
  • provide advice to Organisational Units in regard to legislative and statutory requirements, standards and guidelines;
  • co-ordinate the administration of WHS matters at the University, including incident and hazard reporting and resolution, radiation safety, and hazardous materials management;
  • coordinate University WHS monitoring programs (e.g. audiometric testing);
  • oversee the rehabilitation of University personnel in consultation with the relevant Organisational Unit and/or an external provider;
  • co-ordinate WHS Audits, the collation of results and preparation or reports
  • preparation of WHS Management reports
  • Consultation and communication: facilitate consultation with the WHS Committee on changes proposed to be made at the University which may affect the health or safety of persons;
  • liaise with and meet regulatory notification requirements of Workplace Standards Tasmania.

The University's WHS Unit comprises:
Lauren Jago – Manager WHS Unit, Ext: 7555, Fax: 7536
Email: Lauren.Jago@utas.edu.au

Ms Jane Hanna – Associate Director – Workplace Relations, Fax: 7536
Email: Jane.Hanna@utas.edu.au

Science, Engineering & Technology and Arts, Business, Law Hub
Clodagh Moy
Mobile: 0407 831 181
Email: Clodagh.Moy@utas.edu.au

Location: Level 1, Corporate Services Building, TT Flynn Street, Sandy Bay Tasmania 7000
Address: Private Bag 46, Hobart Tasmania 7001
Facsimile: +61 3 6226 2751

General Enquires:
Email: health.safety@utas.edu.au
Telephone: +61 3 6226 6298

Urgent Assistance:
Health and Safety,
Telephone: 0419 267 509

The Unit’s web page address is: http://www.utas.edu.au/work-health-safety/

Issue of Keys and Access Cards to the Chemistry Building
Chemistry, Hobart: Dr Andrew Grosse Ext. 2184 – using the form located at:
\corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\School of Physical Sciences\Chemistry Data\all\Chem School Forms\New Key & Access Card Form Jan 2014

Pharmacy: Dr Peter Traill Ext. 2200
CSL: Mr Paul Waller Ext. 7864

Hobart Chemistry Building Safety Committee
Chemistry Building Risk Assessment Process Information

Important information on the Chemistry Building Risk Assessment process can be found on Page 32. Access information for Chemistry personnel can be found on Page 33, while access details for other Chemistry Building staff is located on Page 34.

GUIDE FOR EMERGENCIES

BUILDING EVACUATION PROCEDURES

Chemistry/Central Science Laboratory/Pharmacy/ACROSS and PARC laboratories/general areas

Summary

- On hearing the evacuation signal you are required to turn off gas supplies and electrical equipment (unless this could cause potential hazards) which you are using, make reactions safe and leave the building promptly by the appropriate escape route. In the event that the route is blocked you will be directed to an alternative one.
- Do not turn any lights off.
- Close windows.
- Close, but DO NOT lock doors.
- Everyone must assemble either on the paved area adjacent to the Centennial Fountain in the courtyard in the middle of the University or on the grassy area east of the University Club.
- Re-entry into the building will be prevented until the emergency is declared over and the building deemed safe for occupancy.

Building Manager

Manager: Mr Murray Frith Ext. 2147
0 - 0417 153 320 (all hours)
Email: M.Frith@utas.edu.au

Deputy Managers:
Dr Peter Traill Ext. 2200
0 - 6248 5341/0 - 0418 546-815 (after hours)
Dr Jason Smith Ext. 2182
0 - 0402 931 474 (all hours)
Dr Thomas Rodemann Ext. 7192
0 - 0403 273-627 (all hours)

Laboratory Managers

Chemistry: Mr Murray Frith Ext. 2147 (H) /3864 (L)
Pharmacy: Dr Peter Traill Ext. 2200

CSL:

Campus Emergency Controllers – Hobart Campus

Mr Barry Russell Ext. 2688
Mobile: 0417 536 776
Email: Barry.Russell@utas.edu.au
Reasons for Evacuation

The building needs to be evacuated in the event of:

- a serious fire or explosion, or threat of explosion
- a major chemical spill, especially flammable solvents
- the release of toxic, corrosive, or flammable gases
- power failure
- prolonged water failure
- failure of the extraction system
- bomb threat
- practice evacuations
- for any other reason as assessed by the building manager

Once the signal for evacuation has sounded, the evacuation must be completed, even if it is discovered that the alarm is false.

Alarm Systems

The building is equipped with a fire detection and location system with battery backup. Detectors are triggered by a sudden increase in temperature causing a warning tone ("Beep, Beep") to be broadcast throughout the building. The position of the detector is displayed on a fire-location panel situated outside the main entrance foyer. At the same time the fire brigade is automatically notified. There is also a bell alarm system located outside the building.

The warning tone alarm is interlocked with the evacuation tone alarm ("Whoop, Whoop") and this tone automatically sounds 30-60 seconds after the warning tone alarm.

Activation of the alarms will also turn off the LPG supply to the building automatically. The solenoid valve needs to be physically turned back on once the emergency situation is over – the building manager or delegate will notify the Unit Technical/Laboratory managers of this when it occurs after hours.

Each level of the building is fitted with glass-protected push buttons to activate the alarm systems. These are situated as follows (also see the diagrams of escape routes in the Safety Manual):

- Level 1 - loading bay
- Level 2 - main passage adjacent to both stairwells, Pharmacy and CSL lab area opposite rear entrance to 210, inside 2017, east wing stairwell.
- Level 3 - main passage adjacent to both stairwells, East wing stairwell, CSL lab
- Level 4 - in the main passage adjacent to both stairwells, organic research lab exit
- Level 5 – outside the danger labs near the exits

BOTH ELECTRONIC ALARMS, THE WARNING TONE ("BEEP, BEEP") OR THE ECAVATION TONE ("WHOOP, WHOOP") ALONE AND/OR A VERBAL COMMAND, EITHER IN-PERSON OR VIA THE PA SYSTEM, INDICATE THAT ALL OCCUPANTS MUST LEAVE THE BUILDING IMMEDIATELY.

Procedure Following an Evacuation Alarm

(warning tone and/or evacuation tone or verbal command)

- On hearing any evacuation signal all occupants must leave the building.
• Depending on the nature of the emergency, the Building Manager will call in the appropriate emergency services via University Security, and take such action to ensure that any casualties are removed and appropriate advice is available for the emergency services.
• If there is a fire, the person in charge of the area, or the staff member who arrives and takes this responsibility, should:
  – remove any casualties from the vicinity of the fire – if it is safe to do so
  – notify the fire brigade (phone 0-000) and security (x7600) to confirm the emergency
  – ensure that the Building Manager is fully aware of the situation

Duties of Building Manager

• Check the BOWS system and make any required announcements and alarm activation/de-activation.
• Take up position outside the main entrance of the chemistry building, after ensuring that the appropriate authorities (fire brigade / police / ambulance, as required) have been notified and that lifts have been returned to Level 1 and locked off.
• Receive reports from floor wardens and ensure that all parts of the building have been evacuated.
• Ensure that ‘No Admission’ signs are placed in the laneways along each side the building.
• Ensure the library underground is manned to prevent exit in the event of a Chemistry Building emergency evacuation.
• Ensure that all laneways are manned to prevent entry/exit during a Chemistry Building emergency evacuation.
• On arrival of the fire brigade / police / ambulance, direct them to the emergency and advise all known details especially advice on the potential hazards involved.
• Authorise removal of 'Building Under Evacuation' signs and re-entry to the building when the emergency is over, after the approval of the officer in charge, Hobart Fire Brigade, and/or other authorities as the situation dictates, has been obtained.
• Inform the floor wardens, either via bullhorn or directly that the evacuation/emergency is over and building re-entry may be undertaken.
• Ensure personnel manning the exits/laneways/etc. are informed of the status of the emergency and evacuation.
• Authorise the gas solenoid valve to be turned on after the emergency is over and after all other gas taps are confirmed to be off.

Escape Routes and Assembly Points (see Appendix K of the safety manual for diagrams)

• Each area of the building has an assigned escape route which is prominently displayed. Escape routes are to be kept clear at all times. Equipment is not to be placed in corridors.
• Occupants of Levels 2 and 3 and 4 of the southern section of the building (i.e. the large teaching laboratories) leave via the stairwell and door on the south end of the building.
• East wing and central Level 1 occupants leave via the fire exit adjacent to the goods entrance. Other Level 1 occupants leave via the fire exit at the north end.
• Occupants of the smaller first-year Pharmacy teaching laboratory leave via the first-year laboratory entrance leading into the main corridor, thence via the front door. The remaining occupants of Levels 1, 2 and 3 of the main building leave by the front door, the upper level occupants moving down the main stairs.
• All occupants of the west wing including those in CSL, PARC Laboratories and Pharmacy teaching laboratories leave by the appropriate western door opposite the Library.
• Persons working on the roof should proceed to the lower levels by either door, and then leave via the normal routes.

NOTE THAT ALL PERSONS WHO HAVE CAUSE TO WORK ON THE ROOF AREAS MUST FIRST LEAVE DETAILS OF THEIR INTENTION TO WORK IN THAT AREA ON THE WHITEBOARD ON LEVEL 4 ADJACENT TO THE NORTHERN STAIRCASE, AND ALSO REMOVE THESE DETAILS IMMEDIATELY AFTER THEY VACATE THE AREA.

• Occupants of the Level 3 lecture wing depart by the Fire Exit at the end of the corridor adjacent to lecture rooms Chem328 and Chem327, and then down the escape stairs to the outside door at the rear of the main lecture theatre.
• Occupants of the main lecture theatre CHEMLTH 210, sitting forward of the middle of the theatre, leave by the CHEMLTH 210 main door and then via the main doors and fire exits in the foyer.
Persons seated to the rear of the theatre leave by the emergency exit at the rear of the theatre and the back outer door.

- **Escape routes which may be used only when the normal routes are blocked** are: the roof of the east wing reached by the door opposite the Level 4 dispensing laboratory; the roof of the lecture wing reached by door at the top of northern stairwell on Level 4 and the roof of the main building. In all cases people would have to rely on the Fire Brigade to provide escape via an extension ladder. If the CSL route exit the western door is blocked, occupants are to leave via the chemistry building, picking up the routes on either level.

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**THE LIFTS MUST NOT BE USED DURING ANY EVACUATION.**

AFTER LEAVING THE BUILDING PERSONS MUST ASSEMBLE IN THE AREAS DESIGNATED. ACCESS ROADS AND ENTRANCES ARE TO BE LEFT CLEAR FOR ESSENTIAL SERVICE VEHICLES AND PERSONNEL.

- No person is to re-enter the building until OK is given by the building manager.

**Evacuation of Students**

- **Laboratory Classes**
  The supervisor or senior demonstrator of the laboratory class will instruct the students to turn off the gas, electricity and water (where appropriate) and then direct them to the nearest safe exit, normally that shown on the emergency exit route sign displayed in the area. Leave the lights on.
  NOTE: All students must be made aware of emergency exits and procedures at the commencement of their course.

- **Lectures**
  The lecturer in charge will direct the students to the appropriate assigned exit.

**Evacuation of Other Personnel**

In all cases observe these points:

- Turn off gas and electricity to your experiment and at the mains, if nearby.
- Follow your evacuation route as quickly as possible but without panic.
- Lifts must NOT be used under any circumstances.
- When outside the chemistry building move to one of the designated assembly areas. These are the paved area adjacent to the Centennial Fountain or the grassy area east of the University Club, whichever is closest. **Do not crowd near doorways.**
- **Do not re-enter the building when the alarms cease sounding.** The signal to re-enter the building will be given by the Building Manager.

**Evacuation of Persons with Disabilities**

In all cases observe these points:

- Keep offices and passageways clear of obstructions.
- Discuss with persons who have disabilities how they can best be assisted in an evacuation (e.g. lifting, carrying, escorting them from the building).
- Ideally, involve the person's colleagues in the planning process so that if it does become necessary to evacuate, they can directly assist the individual.
- Don't assume that lifting techniques will be similar for all disabled persons.
- If unsafe to use a lift and unable to evacuate a person immediately and safely, position person in fire isolated stairwell (in buildings so equipped) where practicable, with someone to remain with them, and obtain assistance.
- In the case of hearing impairment, discuss communication requirements with the individual and determine communication techniques that best suit the individual.
- In the event of an emergency and/or evacuation, ensure that the person is personally informed of the situation.
- Ensure that a blind person takes someone's arm (guide dogs should be put on the leash)
- In the case of persons who are intellectually impaired, explain evacuation procedures carefully and clearly, asking for feedback to ensure understanding.
- Sections that have disabled person within their area should liaise as soon as possible to determine the best means of assistance for any evacuation procedures. This will also determine
the best means to communicate the type of emergency. When the evacuation involves the main
teaching areas and it has not been possible to establish such plans in advance, unless the
person is in immediate danger, it may be necessary to wait for the Fire Service. It may also be
necessary to use horizontal evacuation through adjoining buildings to evacuate any persons
from the building.

Duties of Floor (Area) Wardens
- Floor wardens (see Appendix E of the Safety Manual) are to check that various building areas are
cleared of all persons and 'No Entry' signs are placed at all exits, then report to Building Manager
to indicate that their assigned area is clear and to receive further instructions. In case of an
evacuation due to bomb threat, floor/area wardens are to carry out a verbal command evacuation
procedure, ensuring that personnel check their immediate work areas for possible devices prior to
directing them to leave building by an exit other than main foyer.
- If floor/area wardens are involved in teaching (lecturing, tutoring, laboratory supervision), then in
the event of an evacuation they must ensure that the class is instructed on the correct evacuation
procedure before commencing their floor/area warden duties. If possible, floor/area wardens
should delegate their class evacuation duties to another person, such as another demonstrator, to
allow them to fulfil their warden duties.
- Allow re-entry of the building after an emergency evacuation upon direct communication with the
Building Manager/Warden.
- Floor/area wardens are to only check for personnel, not the status of plant/equipment. If plant is
deemed to be hazardous, then they must report this to the building Manager.
- If personnel cannot be evacuated for any reason (danger, incapacitation, etc.) then wardens must
advise the building manager (area warden) of their location and problem.
- If the normal evacuation route is blocked by any obstruction or hazard, then wardens are to direct
personnel to use the alternative escape route.
- If the occupant light in the Chip Lab (Room 427) is lit during an evacuation situation, use the
emergency key in the break glass box to check the room.
- If doors are locked during your emergency inspection, do not attempt to unlock the door, simply
make a note on your evacuation inspection plan (see the PowerPoint file located on the Chemistry
Building Safety Intranet site) and report it to the Building Manager.
- Wardens are required to regularly attend (at least every 3 years) the warden training provided by
the University.

Building Evacuation due to Bomb Threat
- In the case of a building evacuation due to a bomb threat, all floor/area wardens should perform a
brief inspection of their immediate work area to identify any unusual objects located there so
emergency services may be advised of their location. The building electronic alarms should not be
sounded in the case of a bomb threat; instead the building Manager should be immediately
notified and a verbally commanded evacuation should take place, ensuring that the main entry/exit
is not used as this is the most likely point for placement of a device for maximum personnel
damage in such a scenario. Evacuation procedures to carry on as for other alarmed situations,
however you should REMOVE personal belongings such as bags, boxes, etc. with you as you
leave. As you leave you should also open the windows, if possible, in your area/office in order to
vent the shockwave from any explosion.
- The Building Manager must be notified immediately of the threat.
- The Building Manager will notify Security, the Campus Emergency Coordinator, and Property
Services of the problem.
- The Building Manager will contact the deputy building Managers by mobile and land lines.
- The Building Manager and the deputies will contact the floor wardens in their areas, namely
Chemistry, Pharmacy, CSL and PARC.
- The floor/area wardens and Building Managers will perform the evacuation under silent conditions.
- The Building Manager will use the public address system of the BOWS to coordinate the
evacuation if deemed safe to do so.
- See Appendix L of the Safety Manual for the Bomb Threat Checklist.

Building Evacuation due to a Power Failure
- The Chemistry Building MUST be evacuated in the event of a power failure.
- The Building Manager must be notified immediately at all times in the event of a power failure.
- The Building Manager will notify Security, the Campus Emergency Controller, and Property
Services of the problem.
• In the event of a power failure, emergency lighting in all buildings will provide limited illumination.
• Floor/area wardens and Building Managers should make use of the portable emergency lighting duration these situations.
• Commander and other power-dependant phone systems will be inoperative during the power failure.
• Call the Campus Emergency Number (x7600) to notify security.
• If normal activities are severely affected by reduced illumination, switch off all appliances that have been in use, check workplaces for any evidence of a fire, calmly leave the building and assemble as for any evacuation.
• Where practicable, the Campus Emergency Coordinator and the Chemistry Building Manager should attempt to ascertain the likely duration of the interruption to power and advise affected persons.
• The Campus Emergency Coordinator should also consider any consequential hazards as a result of a power interruption.
• Evacuation Siren:
  • If operational, the Building Manager, or delegate, will activate the evacuation siren and use the public address system to signal entire building evacuation.
  • If inoperable, then the building Manager will contact the deputy building Managers by mobile and land lines – if possible, to indicate an evacuation is required.
• The building Manager and the deputies will contact the floor wardens in their areas, namely Chemistry, Pharmacy, CSL and PARC.
• The floor wardens and building Managers will perform the evacuation under silent conditions.
• The main door to the chemistry building will fail LOCKED, so exit will be via the two side emergency doors. All other exists to the building will fail OPEN.
• Floor wardens, and other staff at the direction of the Building Manager, will monitor the building exits to prevent re-entry.
• All personnel should perform a brief inspection of their immediate work area. Evacuation procedures to carry on as for other alarmed situations, however you should remove personal belongings such as bags, boxes, etc. with you as you leave.
• If the power failure occurs during after hour’s periods, then entry to the building will not be possible via the front door, and an alternative entry point will need to be accessed.
• The Building Manager, or delegate, will manually lock the chemical store during these periods of power failure.
• If the power failure will continue for an extended period of time, then the Building Manager will arrange for external power to vital services, such as the Level 5 cool room and freezer.

See Appendix X of the Safety Manual for the Power Failure Checklist.

Building Procedures due to a Water Interruption
• In the event of an interruption to the water supply to the building, the Building Manager must be notified immediately.
• The Building Manager will notify Security, the Campus Emergency Coordinator, and Property Services of the problem.
• Any interruption will render all water related services unavailable, which includes laboratories, safety showers and eye-wash, drinking water, lavatories, etc.
• If this situation occurs, then laboratory work is strictly PROHIBITED.
• If the supply is suspended for short periods of time, then office work and teaching classes can continue.
• Property Services has the ability to fill the tank controlling the flushing of the lavatories; however this must be arranged via Property Services and Barry Russell from Property Services.
• If the delay will be for extended periods of time, either drinking water must be supplied, or the building evacuated and closed. This call will be made by the Building Manager in consultation with the WHS office, the Campus Emergency Coordinator and Property Services.
FIRST AID

- NOTIFY nearest First Aid Officer IMMEDIATELY
- FOR MAJOR INJURIES GET HELP BY PROMPTLY CALLING AN AMBULANCE (Tel 0-000) OR UNIVERSITY SECURITY ON EXTENTION 7600. Carry out the procedures outlined below. If possible get help by contacting a person trained in first aid (see Appendix F).
- For MINOR INJURIES carry out the procedures outlined below. For all but the most trivial injuries get additional help by sending (or escorting) the person to:
  - a hospital casualty centre
  - the University Medical Centre
  - the Grosvenor Street Medical Centre, (57 Grosvenor Street, Sandy Bay)
- For accidents involving chemicals, supply information about the chemicals involved to medical personnel.
- In all cases notify the appropriate Laboratory Manager, the Building Manager and the appropriate HSR.
- Obtain relevant information - for example:
  - exact location of injured person
  - type of injury(s) sustained
  - cause of injury(s)
  - treatment required (if known)
  - current status of patient
- Call Campus Emergency Number - they will ring the Ambulance and arrange to meet them if required
- Wait with injured person until help arrives

Remember:
- Do not move the injured person unless it is unsafe to leave them where they are. Only attempt to move the injured person if it is safe for you to do so.

Serious Bleeding
- Call ambulance, trained first aid officer, or University Security.
- Attempt to control bleeding by applying direct pressure (with a pad or your hand) to the area.
  - Do not apply a tourniquet
- Do not attempt to remove any foreign body from the wound
- Elevate the affected limb in an attempt to reduce blood flow

Minor Bleeding
- This type of bleeding includes abrasions, cuts, lacerations, punctures, and tears
- Call ambulance, trained first aid officer, or University Security.
- Flush area with distilled water
- Do not remove any skin – place back over the wound
- Use a pad to control bleeding
- Apply a non-adherent dressing
Extensive Burns
- Call ambulance, trained first aid officer, or University Security.
- Wash off any residual chemical. Cover injuries with sterile non-adherent gauze dressing, clean, wet dressing or sheet. Leave neck and head uncovered. Wait for trained help and ambulance.
- Do not apply any oils, creams or jelly.
- Do not prick or break blisters
- Do not use towels, cotton wool, blankets or adhesive dressings
- Do not remove clothing stuck to the burn

Minor Burns
- Extinguish burning clothing – smother flames with blanket, jacket or with water
- If a scald, remove the person’s wet clothing from the affected area
- Cool the burnt area under running cold tap water for about 10-15 minutes.
- Cover burn with a non-adherent dressing

Clothing on Fire
- Be aware that victim may not be cooperative
- STOP person from running around
- DROP person to the ground and wrap in a blanket, laboratory coat, jacket or rug – natural fibres are best (wool, cotton), do not use synthetic materials such as nylon, etc.
- Douse flames with a safety shower, if immediately accessible, but to prevent rising flames from reaching the head do not allow the victim to stand
- Do not use any type of chemical fire extinguisher on a person
- If own clothes on fire, drop to the floor and smother the flames with a rolling action
- ROLL person along the ground until flames are smothered
- TREAT burn as above
- Seek medical aid

Radiation Burns
- As a result of radiant energy from the sun, X-rays, welding equipment, radioactive material
- Rest person in a cool place
- Place under a cool shower or bath, or sponge with cool water
- Give cool drinks
- If eyes are affected, cover with thick, cool, moist dressing, which excludes light
- Seek medical aid

Electrical Burns
- Check danger for yourself and others in the area
- Switch off the power
- Remove person from electrical supply without directly touching the person, using non-conductive, dry materials, such as a dry, wooden broom handle
- Wash and cool burnt area under running water
• Apply a non-adherent/burns dressing
• Seek medical aid

**Chemical Burns**

• **Spray the affected area with Diphoterine if available as a first response, Otherwise**
  Wash off chemical immediately using large quantities of water for at least 20-30 minutes
• Use a safety shower, eye wash station or the tap
• Organic materials can be absorbed through the skin and in these cases follow the cold water washing by a thorough washing with warm water and soap
• A shower facility is located on level 1 of the chemistry building
• Remove and wash thoroughly all contaminated clothing and footwear
• If necessary clear the laboratory to effect first aid
• Seek medical advice
• See below for eye contamination

**Eye Injuries**

• Call ambulance or University Security.
• *Chemicals splashed in the eye* - immediate and prolonged (~ 30 minutes) gentle flushing with water from the nearest eye wash station, safety shower or tap. Do not use neutralising solution.
  The victim must be taken by ambulance to hospital.
• *Splinters of glass or metal in the eye* - Cover both eyes and get medical help as soon as possible.
  - Do not under any circumstances try to remove the foreign body

**Cryogenic Burns**

• Flush the affected area with cool water and remove any clothing, gloves or footwear saturated with fluid.
• If burn is severe, call ambulance.
• *Do not* rub affected area
• *Do not* expose to radiant heat.
• Seek medical advice.

**Heat Induced Conditions**

**Heat Exhaustion**

• Lie person down in a cool place with circulating air
• Loosen tight clothing and remove unnecessary garments
• Sponge with cool water
• Give fluids to drink
• Seek medical aid if the person vomits or does not recover promptly

**Heat Stroke**

• As per Heat Exhaustion, but:
  - Apply cold packs or ice to neck groin and armpits
  - Cover with a wet sheet, coat, etc.
  - If conscious, give fluids
**Epileptic Seizure**
- Check breathing and pulse
- Protect person from injury, but do not restrict movement or place anything in mouth
- Manage injuries and place on side as soon as possible, and let the person sleep if desired
- Seek medical aid, and especially if the seizure lasts more than 5 minutes, another seizure follows, or injury has resulted

**Diabetic Emergency**
- Essentially help the person self-help themselves
  - Provide sweets to conscious person if required or allow person to self-administer insulin
  - Do not administer insulin for them
  - Seek medical aid

**Asthma Attack**
- Check breathing and pulse
- Make person comfortable
  - Sit upright, and lean forward
  - Ensure adequate fresh air
  - Get person to take slow, deep breaths
- Help with administration of person’s medication
  - Give 4 puffs of blue reliever inhaler, wait 4 minutes, and repeat if no improvement
- If attack continues, seek medical aid, while giving 6-8 puffs of the reliever inhaler every 5 minutes

**Choking**

**Partial Blockage**
- Encourage person to relax and breathe deeply
- Ask person to cough
- If unsuccessful, bend person well forward and give 4 sharp blows between the shoulder blades
- If unsuccessful, lie person on side on floor and seek medical aid

**Total Blockage**
- Lie person on side on floor
- Give 4 sharp blows between shoulder blades
- If unsuccessful, give 4 quick downward lateral chest thrusts (place your hands on side of chest, below person’s armpit)
- If unsuccessful, seek medical aid, while repeating the above steps until help arrives or the blockage clears

**Chest Pain/Discomfort**
- Advise person to stop work and rest
- Assist person to take any relevant medication
- Seek medical aid, while monitoring person’s breathing and pulse
- Defibrillator available in Chemistry foyer next to lift.
Fracture, Dislocation, Sprain, and Strain

- Attend to breathing and pulse
- Control any bleeding, and cover the wound
- Check for fractures
- Ask person not to move injured part
- Immobilise fracture
  - Use large bandages to prevent movement of joints above and below the fracture
  - Support the limb, carefully passing the bandage under the natural hollows of the body
  - Place a padded splint along the injured limb
  - Place padding between the splint and the natural contours of the body and secure tightly
  - Check bandages are not too tight every 15 minutes
  - Watch for signs of circulation loss to extremities
- Seek medical aid
- For Sprains and Strains:
  - Follow the procedure of Rest, Ice, Compression, Elevation
  - Seek medical aid

Breathing Failure

- Notify ambulance service, certified first aid officer or University Security.
- Call in person trained in First Aid (see Appendix F)
- Defibrillator available in Chemistry foyer next to lift
- Attempt to restore breathing
  - Roll victim on side and make sure airway is clear by tilting head back to open airway
  - Check for breathing by looking at and feeling for rise and fall of chest, while feeling for expired air against your cheek
  - If not breathing, roll on back, tilt head back and give 5 normal breaths, placing your mouth over the person’s mouth while pinch-sealing the nose with thumb and forefinger
  - Check for pulse in the neck near the Adams apple using 4 fingers (not thumb)
  - If a pulse is present, continue mouth-to-mouth breathing at a rate of 1 breath every 4 seconds, checking pulse every minute, until help arrives or breathing commences
  - If no pulse is present, commence cardiopulmonary resuscitation with 15 chest compressions over the breastbone in line with nipples, followed by 2 normal breaths, at a rate of 4 cycles/min
    - Check pulse every minute (4 cycles)
    - Continue until help arrives or patient recovers
      - If pulse returns, continue mouth-to-mouth resuscitation until patient recovers or help arrives
Poisons

- Call ambulance (0-000) or university security (x7600)
- Notify someone else immediately
- Get medical help promptly. Meanwhile identify the poison
- Never give anything by mouth to an unconscious person or to a person in convulsions
- The appropriate Laboratory Manager must also be notified in all cases

Unknown Poisons Swallowed

- Do not induce vomiting. Contact the Poison Centre on 13 11 26 (see inside front cover). Treat the patient not the poison. Get medical help quickly. Call ambulance or University Security

Inhalation of Toxic Vapours

- If severe and patient is unable to remove himself/herself from the danger area, remove victim from contaminated area if it is safe to do so or call a person trained in the use (see Appendix F) of self-contained breathing equipment. Loosen victim's clothing. Get medical help quickly. For milder cases of poisoning go to a hospital casualty centre, the University Medical Centre (TUU Building) or the Grosvenor Street Medical Centre (57 Grosvenor Street, Sandy Bay). Be sure to provide information on the toxic substance involved and treatment given. If the contamination is extensive or if you are unsure, evacuate the area (or the building). Notify the appropriate laboratory manager or building Manager.
- Monitor breathing and pulse
  - If person stops breathing, loses consciousness, and/or pulse, commence mouth-to-mouth resuscitation, and/or cardiopulmonary resuscitation
  - Never give mouth-to-mouth resuscitation to a person who has been poisoned by cyanide as you may be affected yourself.

FIRE

- NOTIFY THE BUILDING MANAGER IMMEDIATELY
- IF UNSURE OF ACTION, EVACUATE IMMEDIATE AREA, THEN ACTIVATE NEAREST BREAK GLASS ALARM
- APPROPRIATE LABORATORY MANAGER AND BUILDING MANAGER MUST ALSO BE NOTIFIED IN ALL CASES
- As soon as you commence work in the building make certain that you know the location of the fire extinguishers and any other safety equipment and procedures (fire blankets, eyewash stations, safety showers break-glass alarms, escape routes) in the area where you work and also in other areas of the building.
- If a fire occurs, gas and electricity to the bench or fume hood should be turned off.
- The only Fire-fighting procedures you should carry out are those for which you have received training by the Tasmanian Fire Service, or are approved by the University WHS unit.
- If you are in any doubt as to the procedures to be carried out if a fire occurs you should evacuate the area and sound the fire alarm immediately.
• If the fire is not being brought under control, sound the fire alarm and evacuate immediately. Break-glass alarms are located outside the main chemistry laboratories and near the staircases on each level of the building.

• If the thermal sensors activate the alarm bells, but the fire is being brought under control, then continue to fight the fire while it is safe to do so. Once extinguished leave the building. Advise the Building Manager.

• If the alarm bells sound for an emergency evacuation and you are not involved in fighting the fire, turn off gas and electricity to your experiment and evacuate the building by the route allocated for that area.

• An accident/incident report form must be completed for all fires in the workplace.

**SPILLAGE**

- NOTIFY SOMEONE ELSE IMMEDIATELY
- APPROPRIATE LABORATORY MANAGER AND BUILDING MANAGER MUST ALSO BE NOTIFIED IN ALL CASES

All laboratories should be equipped with mobile "SPILL" stations for small-scale spillage. Additional larger-scale spill kits are located on Level 3 (near Room 310).

**Acid Spillage**

- Cover the area of spillage with excess of solid sodium bicarbonate. Leave until neutralisation is complete. Sweep and collect the neutral solid. Small amounts of residue can be dissolved in water and flushed down the drain. Large amounts should be placed in a bucket with a lid and disposal should be arranged. Wash the floor (or other surface) with water, making sure that the washings are neutral (via litmus).

**Alkali Spillage**

- Cover with sand, collect into a bucket with a lid. To neutralise large spills benzoic acid can be used instead of sand. Cover the spill with sufficient benzoic acid to neutralise the alkali and to form the salt of benzoic acid. Collect the solid salt into a labelled bucket with a lid and hold for disposal. Wash the floor (or other surface) with water, making sure that the washings are neutral (via litmus).

**Noxious, volatile, organic chemicals**

- Cover with sufficient charcoal or vermiculite to absorb the entire spilled compound. Sweep and place into a bucket and cover tightly with a lid, label and hold for disposal.

**Mercury**

- Isolate area
- Spills should be cleaned up immediately. Zinc dust is available from the store. This is spread over the mercury and the treated mercury product collected, labelled and stored for disposal. Mercury thermometers should be replaced by alcohol thermometers if it is practical to do so.

**Release of Noxious/Toxic Substances into Atmosphere**

- If noxious/toxic substances are accidentally released into the atmosphere in the chemistry building then the building should be evacuated by ringing the alarm bells (break-glass alarm), situated on every level of the building near staircases.
- Advise Building Manager and appropriate laboratory manager of incident details. Do not leave front door area unless advised by the building Manager or Fire Brigade.
NOTIFICATION OF SAFETY HAZARDS

- To attempt to avoid any safety hazards causing injury to individuals in the building, the completion of a “Notification of Safety Hazard” form will be used to notify the WHS unit of a potential hazard and have it addressed.
- This must be completed using the on-line “Report a Hazard” form located at: http://www.utas.edu.au/work-health-safety/home/. This completed form will be passed on to the appropriate Health Safety representative in the workplace and to the area’s Officer before forwarding to the WHS unit for action.
- Forms are available from the Human Resources Office web page: http://www.utas.edu.au/work-health-safety/. An example of the old paper-based form is located in Appendix G.

INCIDENT / ACCIDENT REPORTS

- Every occurrence that can be classed as an accident or incident, e.g. fire, flood, explosion, liberation of toxic chemicals into the atmosphere, personal injury or cases of sudden illness, or a situation that has the potential for any of the above should be reported without delay to the appropriate Laboratory Manager, HSR and the Building Manager. Research students should also inform their supervisor. Undergraduate students should report all accidents to the senior demonstrator in charge of a laboratory.
- Accident reporting is necessary to enable proper statistics to be kept, so that unsuspected hazards can be identified and eliminated. Failure to notify injury or damage to property could also result in loss of insurance benefits.
- An incident report form is used to notify the administrative units Health Safety Representative, University Work Health & Safety Unit and Building Safety Committee of a potential problem or hazard. Use this to let us know how to make this building as safe and pleasant a place to work in as possible.
- Forms are available via electronic on-line submission process from the Human Resources Office web page: http://www.utas.edu.au/work-health-safety/. An example of the old paper-based form is located in Appendix H.
- If deemed necessary by the HSR, it may be necessary to undertake a review of the accident or incident and this must be prepared using the electronic UTas Report an Incident or Near Miss on-line form located on the Human Resources Office web page: http://www.utas.edu.au/work-health-safety/. An example of the old-based paper-based form is located in Appendix I.
CODE OF PRACTICE

RESPONSIBILITIES OF ALL STAFF

A member of staff will:

• Have a high regard for personal safety and the maintenance of an accident-free, safe working environment in the chemistry building
• Be aware of the content and regulations within the Hobart Chemistry Building Safety Manual
• Set a good example for students in safety matters
• Notify the HSR and the Chemistry Building Safety Committee of hazardous situations
• Be aware of any special role they are to play in the evacuation of the building
• Be prepared to assume responsibility during an emergency
• Ensure that a Risk Assessment is carried out with/by the person’s supervisor before any work, research or new process is started in a laboratory or workshop by staff or students
• Comply with all University Work Health and Safety policies and procedures
• Ensure that they have undergone a safety induction with the Building Manager, Laboratory Manager, or other authorised person before they commence work in the building
• Attend the annual Chemistry Building Laboratory Safety Training Day/s at least every three years
• Complete the Universities Workers Course, located on the UTAS MyLO website www.utas.edu.au/mylo/ at least every three years
RESPONSIBILITIES OF SUPERVISORS OF RESEARCH WORKERS

Supervisors of research workers will:

• Have a high regard for the safety of their research workers
• Provide adequate supervision of their research workers and, in the event of absence, arrange for another suitable person to provide that supervision
• Be aware of the content and regulations within the Hobart Chemistry Building Safety Manual
• Ensure that their research workers are aware of and are following safety procedures and the Code of Practice
• Ensure that their research workers have received adequate safety training and have undergone a safety induction with either themselves, a delegate, the Building Manager, the Laboratory Manager, or other authorised person before they commence work in the building
• Ensure that protective equipment is available, is in working order and is used
• Ensure that unattended reactions are carried out safely
• Be aware of the general nature of the work being performed, in particular after-hours work
• Be aware of the safety implications of the work by ensuring that Risk Assessments are completed as required
• Be aware of the general layout of equipment in the laboratory, operation of fume hoods and of the linkages of fume hoods throughout the building
• Be aware of and correct hazardous situations in their area
• Ensure appropriate housekeeping standards are maintained
• Comply with all University Work Health and Safety policies and procedures
• Take part in the Risk Assessment procedures of the workplace prior to any work, research or new process being carried out by staff or students
• Ensure that chemical inventories are being kept and updated on at least a monthly basis
• Ensure that monthly workplace safety inspections are carried out and that any issues raised are attended to as required
• Attend the annual Chemistry Building Laboratory Safety Training Day/s at least every three years
• Complete the Universities Workers Course, located on the UTAS MyLO website www.utas.edu.au/mylo/ at least every three years
RESPONSIBILITIES OF INDIVIDUAL RESEARCH WORKERS

An individual research worker will:

- Undergo a safety induction with the Building Manager, Laboratory Manager, or other authorised person before they commence work in the building
- Have a high regard for personal safety and the safety of others
- Be aware of the identity of his/her supervisor, and in the event of the supervisor's absence, of the alternative supervision arrangements
- Ensure the safety of visitors to the laboratory
- Be aware of the content and adhere to regulations within the Hobart Chemistry Building Safety Manual
- Maintain good housekeeping in the laboratory at all times
- Inform supervisors of general laboratory activities
- Be aware of the general layout of equipment in the laboratory, operation of fume hoods and of the linkages of fume hoods throughout the building
- Be aware of the likely hazards involved with the chemicals and procedures which are in use (this will require carrying out Risk Assessments as required and frequent consultation of the safety literature - see Appendix A)
- Request information and training when unsure how to handle a hazardous chemical or procedure
- Comply with all University Work Health and Safety policies and procedures
- Take part in the workplace safety inspection activities of the work group each month and notify supervisor of any safety issues identified
- Ensure that chemical inventories are kept up to date as items are introduced to or removed from the workplace
- Undertake training as identified by supervisor as being required
- Attend the annual Chemistry Building Laboratory Safety Training Day/s at least every three years

Complete the Universities Workers Course, located on the UTAS MyLO website
[www.utas.edu.au/mylo/](http://www.utas.edu.au/mylo/) at least every three years
RESPONSIBILITIES OF INDIVIDUAL UNDERGRADUATE STUDENTS

An individual undergraduate student will:

• Undergo a safety induction with the Laboratory Demonstrator/Supervisor or other authorised person before they commence work in the laboratory
• Have a high regard for personal safety and the safety of others
• Be aware of the identity of his/her supervisor, and in the event of the supervisor's absence, of the alternative supervision arrangements
• Be aware of the content and adhere to regulations within the Unit Laboratory Manual
• Maintain good housekeeping in the laboratory at all times
• Inform supervisors of general laboratory activities
• Be aware of the general layout of equipment in the laboratory, operation of fume hoods
• Be aware of the likely hazards involved with the chemicals and procedures which are in use (this will require carrying out the Undergraduate Experimental Hazard Identification Form)
• Request information and guidance when unsure how to handle a hazardous chemical or procedure

Complete the Universities Workers Course, located on the UTAS MyLO website [www.utas.edu.au/mylo/](http://www.utas.edu.au/mylo/) at least every three years
RESPONSIBILITIES OF DEMONSTRATORS AND SUPPORT STAFF IN TEACHING LABORATORIES

A demonstrator or member of support staff in a teaching laboratory will:

- Be responsible for safety in teaching laboratories
- Address safety issues with new classes before practical work commences
- Ensure that laboratory manuals include all relevant safety information in a standard format, including data on specific chemicals, procedures used in experimental work, and evacuation procedures
- Ensure that “Materials Hazard Sheets” in practical books are completed as required by students for all classes prior to their commencement of laboratory activities
- Attend the annual Chemistry Building Laboratory Safety Training Day/s at least every three years

Complete the Universities Workers Course, located on the UTAS MyLO website www.utas.edu.au/mylo/ at least every three years

- Undertake any other training as identified by supervisor as being required
- In case of evacuation, ensure that the exit is clear before directly students to this escape way
PROCEDURES FOR LABORATORY WORK

Research and technical staff workers are to:

• Arrange for their names and contact procedures to be placed near the entrance to their laboratory
• Complete a Project/Task Risk Assessment and the corresponding Safe Work Practices form for any new projects or activities they carry out within the Section: (see http://www.utas.edu.au/work-health-safety/ and on the Database computer – see details on Pages 32-. (Currently in the Lab Managers Office Rm 202)
• Carry out a Dangerous Substances Risk Assessment for any of their activities involving a hazardous substance, as classified by Worksafe Australia (see http://www.utas.edu.au/work-health-safety/ and on the Database computer – see details on Pages 32-. (Currently in the Lab Managers Office Rm 202)
• Carry out a Plant Risk Assessment for any purchase of plant, as classified by Worksafe Australia (see http://www.utas.edu.au/work-health-safety/ and on the Database computer – see details on Pages 32-. (Currently in the Lab Managers Office Rm 202)
• Notify their supervisors and neighbouring workers if an experiment is potentially hazardous
• For any unattended reactions/analyses (either overnight or unattended during normal working hours), fill in the appropriate form, obtain the supervisor's approval and place the form on the main door leading into the laboratory and nearby the reaction/equipment

The form will include a list of electrical equipment operating, toxicity or corrosion problems, flooding or fire hazards, and the procedure in case of trouble (whether to turn off water, power, who to contact, etc.)

An example form for recording details of unattended reactions is shown on the next page (Page 24)

Unattended reaction form is available on Quartzy
Group: Chemistry Store
Documents
Admin documents can be viewed or downloaded.

Or at:
\corpdata.its.utas.edu.au\groups\Science, Engineering and Technology\ School of Physical Sciences\Chemistry /ChemBuildingSafety/ UTas Safety Forms
### UNATTENDED REACTIONS FORM:

Experiments in progress in this laboratory

**Persons involved**

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**Locations of experiment(s) - draw diagram**

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**Chemicals in use**

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**Equipment in use**

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<td>List instruments, machinery, etc.</td>
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**Possible hazards/problems**

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**Suggested action**

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**Other information:**

________________________________________________________________________

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Hobart Chemistry Building Safety Committee
PROCEDURES FOR AFTER-HOURS WORK

- After-hours work is defined as 6:10 pm – 7:45 am weekdays plus all hours on weekends and public holidays.
- It should be noted that normal safety facilities such as first aid officers and other emergency personnel will most likely not be available during the after-hours periods and so hazardous work should be limited during this period.
- The after-hours register, located in the front foyer, must be used by all building users for all types of after-hours work. Failure to use the register will result in the withdrawal of the privilege of out of normal hour’s access.
- Exit from the building must also be noted in the after-hours book.
- After-hours laboratory work late at night (11:00 pm – 07:00 am) is strongly discouraged.
- Desk work can be performed at any time.
- After-hours lab work may only be carried out when a Risk Assessment on the relevant process has been carried out and authorised by the worker’s supervisor. The supervisor must also authorise that it is appropriate to carry out the work after hours. If the Risk Assessment identifies that another person must be present in the immediate work area when the task is carried out then this must also occur during after-hours periods.
- In the event of an evacuation alarm, the after-hours procedure is for occupants of the building to follow the normal procedures of shutting down services and then leaving the building by the assigned escape route for the area in which they are working.
- The Chemistry Building Manager is to be contacted IMMEDIATELY for any incident/accident/evacuation during after-hours work.
- All persons are to assemble below the Staff Club where a check is to be made that everyone has left the building. No one is to leave the area before being checked in this way.
- One person is to be nominated to act as liaison person with the Fire Brigade and any other services involved until the Building Manager arrives.
- No unauthorised persons may be admitted to the building after hours. Strangers should be challenged. If unsure, call x7600 for assistance from Security.
- No after-hours work is to be performed on the roof unless specially authorised by the Head of the person’s administrative unit and the Building Manager. The appropriate Laboratory Manager/s must also be notified.
- Proximity Cards must be used for entry via the main front door; exit is by way of push buttons on all external doors, after noting departure in the after-hours register.

PROCEDURES DURING UNIVERSITY CLOSURE BETWEEN CHRISTMAS AND NEW YEAR

- The University is closed during the period between Christmas (that is from the end of the last working day before Christmas) and New Year (the first working day in January each year).
- As the University if officially closed then access to the building for any reason will only be granted for extenuating circumstances for matters of absolute necessity. This access will be granted by the Building Manager only after written application stating the reasons as to why entry is required.
- During this period work in laboratories and workshops is strictly forbidden for WHS reasons.
- All building access cards will be disabled during this period and access will only be granted to those cards whose holder has approval from the Building Manager. Security will not allow
building access to during this period to staff and students who have not arranged prior access. In matters of extreme urgency, the building manager can be contacted to arrange access.

- If access is granted then this will only be for short periods as prolonged work in the building is not permitted during this closure period.

PROCEDURES FOR VISITORS AND SHORT TERM WORKERS

- All visitors/short term workers must be either officially appointed or complete a volunteer’s form.
- For safety and security reasons, you should restrict the number of non-chemistry building personnel that you allow to accompany you into the building.
- These visitors may not be familiar with the ever-present hazards within a chemical laboratory and as such are not permitted to wander unaccompanied within the building.
- No visitors are to enter laboratories (unless the laboratories are thoroughfares to offices).
- Visits should be kept as short as possible.
- Children are under no circumstances allowed in the building without strict supervision (no part of the building should be used for child minding during work hours or after hours).
- Children are to be kept out of laboratories at all times.
- All visitors to laboratories, including staff and students temporarily entering laboratories of other research groups, are required to wear appropriate eye protection and other personal protective equipment as required.
- All visitors and short term workers to building laboratories must undergo a safety induction meeting with the Building Manager, relevant Laboratory Manager or other delegated person prior to their use of any laboratory facility, using the designated form. The visitor and/or short-term worker must complete and sign the declaration form and submit this document for filing with the relevant laboratory manager or administrative unit office.
- Documentation for visitors and short term workers is located at: \corpdata.its.utas.edu.au\groups\Science, Engineering and Technology\ School of Physical Sciences\Chemistry /ChemBuildingSafety/Contractor Information/

ANNUAL CHEMISTRY BUILDING LABORATORY SAFETY TRAINING DAY

The Chemistry Building Safety Committee (CBSC) will organise and host the Annual Chemistry Building Laboratory Safety Training Day, which will:

- Be compulsory for all new staff, postgraduate and honours students to the Chemistry Building
- Be held early in February each year
- Must be attended by all staff and postgraduate students at least every 3 years
- Notices will be sent out for this day to all those required to attend between September and December the previous year, with reminders being sent out in the second half of January
- The heads of the administrative units will be responsible to ensure that their staff have attended this day at least every 3 years
- All participants will be presented with a signed and dated certificate of completion
- The CBSC will arrange the various presentations and trade displays for the day
- The day will consist of a mixture of theory and practical activities
- This day will be opened to other sections and faculties within the university and to outside organisations at a cost set by the committee
- The profits or costs of this day will be shared between the administrative units within the building
- Documentation for this day can be found at: Holly-hbt/ChemBuildingSafety/Safety Training Day/
PROCEDURES FOR CONTRACT WORKERS

1. Property Services is to notify Chemistry Building Reception/Office Manager of imminent arrival of contractors who will then notify the appropriate persons.

2. All contractors, irrespective of their work site in the Chemistry Building, must report to Chemistry Building Reception and sign in/out in the Contractors Log Book located at Chemistry Building Reception regardless of the administrative unit being visited.

3. "All contractors" includes all non-permanent occupants of the Chemistry Building including Property Services staff.

4. All contractors to wear Chemistry Building Contractor Badges collected at Chemistry Building Reception when signing in. Property Services staff must sign in but are not required to wear Chemistry Building Badges unless there is no way of identifying them as Property Services personnel.

5. All contractors working on site must have undertaken the University Safety Induction provided by Property Services. Any contractor who has not completed an induction prior to coming on site will be referred back to Property Services.

6. All contractors (irrespective of whether they will be accessing the laboratory areas) must undertake a Chemistry Building Safety Induction.

   The following personnel can undertake to do contractor inductions:

   Mr Brendon Schollum (HSR Chemistry), Chemistry Building Manager (Mr Murray Frith), one of the Deputy Building Managers (Dr Peter Traill, Laboratory Manager Pharmacy, Dr Thomas Rodemann, Chair of the Chemistry Building Safety Committee or Dr Jason Smith), or the Director of the CSL will provide the induction. Contractors are required to sign a declaration that they have undertaken the course. These declarations are valid for 3 years in conjunction with the University Property Services induction, and are kept on file at Chemistry Building Reception for verification on return visits.

7. After signing in, Contractors must wait in the Chemistry Building Reception area until the appropriate Chemistry Building staff member is available to escort the Contractor from the Reception area to the work site. Chemistry Building Reception will be responsible for contacting the Chemistry Building staff member named in the job request/work order or a designated alternative. If the designated person, or their alternative is not available, the contractor must report back to Property Services.

8. If Chemistry Building Reception is unattended, an internal phone and list of contact numbers for each Chemistry Building entity and Property Services will be available in the contractor sign in/out area with instructions for the Contractor to phone the person named in the work order and to remain in the Chemistry Building Reception area until the contacted person arrives to escort the Contractor to the work site. If the person named in the work order is not named on the phone contact list, the Contractor should contact the designated alternatives listed for each entity of the Building.

9. Minimum 24-hour (preferably 7 days) notice of visits by general contractors arranged by Property Services for annual maintenance/service inspections and testing etc (as distinct from contractors responding to job requests) must be provided by email to Chemistry Building Manager, Chemistry Building Reception or delegate, Chemistry Laboratory Manager, Pharmacy Laboratory Manager, and Central Science Laboratory Director. Such notice should advise whether any building services would be affected (e.g. the lights will be out for 90 minutes, power/communications interruptions, etc). Chemistry Building Reception, or the Building Manager will advise the "Whole Building" by email of the visit and any anticipated problems.

10. Chemistry Building Reception to liaise with Property Services in the event of contractor/job request problems.
11. Documentation for contract workers is located at:
\corpdata.its.utas.edu.au/groups/Science,Engineering and Technology\School of Physical Sciences\Chemistry /ChemBuildingSafety/Contractor Information/

**Chemistry Building Internal Procedures**

**Contractor Log Book** and **Contractor Badges** to be the responsibility of Chemistry Building Reception.

**Contact Details for appropriate personnel for each entity** to be maintained by Chemistry Building Reception. Each entity must provide Chemistry Building Reception with current contact details and be responsible for providing updated details when changes occur. This list will name the officers-in-charge of each laboratory in each entity and at least one back-up person.

**Job Requests**
If a job request (for building problems/maintenance issues) is made via the **Pinnacle Job Request System**, there is no need for a paper copy and/or email to be provided to Chemistry Building Reception as all such job requests can be tracked by logging onto the system irrespective of who logged the request.

The following staff have access to the Pinnacle System.

**Chemistry**
- Mr Murray Frith
- Mrs Jennifer Nield
- Brendon Schollum
- Catherine Tyson – Launceston

**Central Science Laboratory**
- Dr Evan Peacock

**Pharmacy**
- Dr Peter Traill
- Mr Anthony Whitty

All non-University work order requests (i.e. those not arranged through Property Services) such as photocopier service, computer repairs, instrument service, etc. are to be notified to the Laboratory Managers or delegates in the appropriate areas.
Chemistry Building Reception Procedure

On arrival of a contractor at Chemistry Building Reception:

1. Find out either verbally from the contractor, or through the Pinnacle system, what the contractor is in the building for and for which entity, and the person responsible.

2. Ask the contractor if he has had a University Safety Induction.
   - If not, direct him back to Property Services.
   - If yes,

3. Ask the contractor if he has had a Chemistry Building Safety Induction.
   - If not, contact one of the following: Dr Peter Traill, Mr Murray Frith, Mr Brendon Schollum, or Director CSL to provide this induction.
   - If yes,

4. Contact the officer-in-charge of the section/laboratory or laboratory manager and have them come to Reception to escort the contractor to the work site.
   - If the officer-in-charge is not available, then contact the alternative back up. If unable to contact the alternative, refer the contractor back to Property Services
   - If the officer-in-charge is available,

5. Have the Contractor sign in while he waits for the arrival of the officer-in-charge.

6. If the contractors are here to service the whole building i.e. as part of Property Services annual maintenance, the above procedure will be followed and then the officer-in-charge of the first entity, on completion of the work in the first entity's area should escort the contractors to the officer-in-charge of the second entity and so on. This should work since the job order will specify the job locations that will indicate the next person to contact.

7. If Chemistry Building Reception is unattended, an internal phone and list of contact numbers for each entity and Property Services will be available in the contractor sign in/out area with instructions for the Contractor to phone the person named in the work order and to remain in the Chemistry Building Reception area until that person arrives to escort the Contractor to the work site.
POLICIES FOR STORAGE, ISSUE, LABELLING AND DISPOSAL OF CHEMICALS

• The date of arrival of new chemicals is to be recorded on the label, unless a manufacture date is provided.
• Chemicals are to be stored in accordance with the guidelines in the Hobart Chemistry Building Safety Manual (see Practical Safety Guidelines).
• Relevant SDS information on all chemicals is to be available in the workplace, preferably in hard copy form. Furthermore, the SDS must also be specific for the brand of the chemical you intend to use.
• Inventories of all chemical holdings in laboratories are to be kept up to date. Details of inventory holdings must be recorded on a common database system within the section and updated on a monthly basis so that the location of all chemicals can be noted.
• Any new dangerous substance (according to Worksafe Australia criteria) to be brought into the Building must have a Dangerous Substances Risk Assessment completed on their use, storage and disposal prior to them being ordered (see http://www.utas.edu.au/work-health-safety/compliance). This assessment must be authorised by the appropriate supervisor before forwarding to the relevant Laboratory Manager with the chemical order request form. Details of dangerous substances used in the workplace will be included in the appropriate Group/Section's/Building Dangerous Substances Register.
• A Task Risk assessment must be completed prior to obtaining the hazardous substance from the relevant store. This assessment must be authorised by the appropriate supervisor before forwarding to the relevant Laboratory Manager. Details of assessment will be included in the Group/Section's Task Register.
• Large quantities of unused chemicals, or small quantities of toxic chemicals, may be accepted by the Chemistry bulk store if no longer required.
• Residues are to be labelled, stored and disposed of according to the guidelines in this Safety Manual.
• Chemical stocks in laboratories are to be reviewed periodically with a view to minimisation.
• All containers of chemical substances must be stored and labelled according to the University's Chemical Substance Labelling Policy & Procedures (see http://www.utas.edu.au/work-health-safety/compliance) and adorned with the appropriate Dangerous Substances diamond/s and/or the GHS pictogram labels.
• This includes any containers of decanted substances, prepared solutions or synthesised chemical compounds that are held the work area for non-immediate use.
• The University subscribes to a Chemical Management System (CMS) which can be accessed from: http://www.utas.edu.au/work-health-safety/key-risks/chemicals-and-hazardous-substances. The CMS is a chemical information management software package which provides important safety information for the creation of Safety Data Sheets (SDS), and in relation to the storage, handling and labelling of chemicals. It is accessible through the University's network and has a limited number of simultaneous inventory licences. The CMS can also assist in the retrieval of Worksafe Australia (WSA) format SDSs, printing of labels and establishment of an inventory module for dangerous goods and hazardous substance storage. If an SDS is not in the CMS database, Sections should notify the CMS to have an SDS index loaded onto a computer in their Section. It is essential that Section ensure that manufacturers supply an SDS when items are purchased and a copy of this SDS is filed in the Section. Sections are able to custom-design their own labels and the CMS will extract the information for the label directly from the SDS.
PRACTICAL SAFETY GUIDELINES

- The chemical laboratory is a potentially dangerous place; however, if proper precautions are taken and safe procedures followed, the risk is minimal.
- The following safety rules are rigidly enforced by the Hobart Chemistry Building Safety Committee, and the occupants of the Chemistry Building:

THE RULES OF LABORATORY SAFETY

EYE PROTECTION MUST BE WORN
Safety glasses must ALWAYS be worn in the laboratory, and are available from the relevant Section, appropriate laboratory manager or for purchase by each student from the Student Union Mixed Shop.

Unaided Vision: Safety goggles or safety glasses that conform with AS1337:2010 (compliance is typically stamped on the side arms of the safety glasses) and which provide adequate protection from chemical splashing are to be worn at all times in laboratories.

Contact lenses: Normal safety glasses do not provide adequate protection if contact lenses are worn. In this case, safety goggles conforming to AS1337:2010 (check label) and which make a complete seal around the eyes must be worn at all times in laboratories. Contact lenses provide no protection and are an additional hazard in the chemical laboratory.

Conventional Glasses: Safety goggles or safety glasses that conform with AS1337:2010 and which provide adequate protection from chemical splashing are to be worn in addition to conventional glasses. Conventional glasses do not provide adequate protection against splashing.

Shields giving complete face protection are available for dangerous experiments.

A LABORATORY COAT MUST BE WORN
A laboratory coat made from cotton or cotton/polyester material is required, and is available from the relevant Section, appropriate laboratory manager or for purchase by each staff member or student from the Royal Australian Chemical Institute – Tasmanian Branch (via the Chemistry) or the Student Union Mixed Shop.

SHOES COVERING ALL OF THE FEET MUST BE WORN
Sandals, thongs or bare feet are not permitted as they give insufficient protection.

LONG HAIR MUST BE SAFELY CONFINED
Hair is flammable. It is to be tied or pinned back or confined in a hair net.

NO FOOD OR DRINK IS TO BE CONSUMED
The consumption of sweets, including cough drops, and the chewing of gum are all NOT permitted in the laboratory.

SMOKING IS NOT PERMITTED WITHIN 10 METRES OF ANY PART OF THE BUILDING

NO SOLUTION IS TO BE PIPETTED BY MOUTH
A rubber bulb pipette filler is to be used at all times.

BEING UNDER THE INFLUENCE OF DRUGS OR ALCOHOL IS NOT PERMITTED
A zero blood alcohol level is required for the undertaking of any laboratory work

LABORATORY WORK WITHOUT SUPERVISION IS NOT ALLOWED
Undergraduate students may not enter a laboratory unless a supervising staff member is present to supervise.
MOBILE PHONES ARE NOT PERMITTED

The use of mobile phones in the laboratory is a distraction to both the user and others nearby, and thus constitutes a safety hazard. Be aware that transfer of chemicals to the phone is possible from your hands. If it so happens that you cannot be out of contact, please consult your supervisor, laboratory manager or the building manager for assistance.

DUTY OF DISCLOSURE AND LABORATORY WORK

For Occupational Health and Safety issues you are required under law to inform your supervisor/laboratory manager, under strict confidentiality, if you have any condition that may adversely affect you (or others) in the laboratory. For example:

a. **Wear Contact Lenses**: as stated in point 1, the wearing of contact lenses in the laboratory poses an additional hazard. If you wish to wear contact lenses in the laboratory you are required to inform your supervisor/laboratory manager, who will advise you on the correct type of eye protection required and any extra precautions necessary.

b. **Are Pregnant**: if you are, or become, pregnant during the course of work within the chemistry building you MUST immediately notify your supervisor/laboratory manager in-confidence if requested. You will NOT be prevented from undertaking laboratory work, but this knowledge will allow extra precautions to be recommended/taken.

c. **Have Other Medical Conditions**: these would include any condition, such as high or low blood pressure, propensity to black-out, or any other debilitating condition that could result in a safety issue within the laboratory.

LABORATORY COATS MUST NOT BE WORN IN GENERAL AREAS SUCH AS LECTURE THEATRES, MEETING ROOMS, OFFICES, TEA-ROOM, TOILETS, ETC

Laboratory coats should ideally be left at the entrance/exits to the laboratory.

GLOVES MUST NOT BE WORN OUTSIDE THE LABORATORY EXCEPT WHEN TRANSFERING DANGEROUS SUBSTANCES

Staff, postgraduate students and researchers must be careful about chemical transfer when using gloves. Gloves should be removed before any general surface is touched (door knobs, computer workstations, etc.). Gloves must be removed before handling pens, calculators, keyboards, etc., the practice of using one gloved, one ungloved hand where possible is preferable.

HANDS SHOULD BE WASHED AFTER EACH SESSION IN THE LABORATORY BEFORE ANY OTHER ACTIVITY IS PERFORMED

OTHER SAFE LABORATORY PRACTICES

Familiarise yourself with the evacuation procedure and the location of:

- fire extinguishers
- fire blankets
- safety showers and eye-wash stations
- first-aid boxes
- break-glass alarms
- exits

Only trained first aid officers are to access first aid boxes. Only persons having attained the TasFire Fire Safety and Equipment Level 2 Certificate or higher, or those recommended by the University WHS unit are to use fire fighting equipment.

A few moments in preparation now may possibly save someone's life in an emergency later.

Hobart Chemistry Building Safety Committee
RISK ASSESSMENTS

In addition to observing the general safety rules in the laboratory, a RISK ASSESSMENT must be carried out before commencing any experimental procedure or purchasing any piece of equipment/plant. For each experiment the result of the risk assessment process must be documented and filed with the experimental details in laboratory notebooks. These must be kept for later reference. If a risk assessment of a Project/Task (see Appendix O) or Plant (see Appendix R) identifies that a hazardous substance (according to Worksafe Australia criteria) is involved, then a specific Dangerous Substances Risk Assessment (see Appendix P) must be completed as well as one for the actual Project/Task (plus the accompanying Safe Work Practice form – Appendix P) or Plant. Copies of the risk assessment/s and accompanying SDS (where appropriate) must also be submitted to the appropriate section administrative area “Hazardous Substance Coordinator” for their own records. Forms are available on the Database computer – (Currently in the Chemistry Lab Managers Office Rm 202)

The risk assessment process requires an examination of materials (chemicals and equipment) and processes as shown below:

1. The available information on all substances to be encountered during the experimental procedure should be examined and reviewed, (use Safety Data Sheets, product labelling, other technical references, and consultation with peers, supervisors or demonstrators)
2. Assessment of the risk to health using any hazardous substance or process under the experimental conditions proposed.
3. A decision as to the level of risk associated with the experiment is made and an appropriate procedure is decided on. Specific hazards and precautions must be entered onto the risk assessment sheet and both supervisors and students must sign the sheet before work is commenced.
4. Qualitative measures of “Likelihood” and “Consequence or Impact” of an incident occurring are carried out and the level of potential risk is then determined using a “Qualitative Risk Analysis Matrix” (see Appendix N).
5. In general, it should be attempted to reduce the level of risk by using the following hierarchy of controls:
   - Eliminate the hazard
   - Substitute the hazard
   - Engineering controls
   - Administrative Controls
   - Personal Protective Equipment ⇒ the last line of defence

Note: Proof should be able to be provided that a higher order level of control than that chosen is not practicable.

6. The completed Risk Assessment should be forwarded to your supervisor for approval.
If the Risk Assessment is for a hazardous substance, following approval by the supervisor the hard copy and an electronic copy should be forwarded to the Section Dangerous Substances Coordinator (typically the relevant Laboratory Manager) for recording of the information to a central spreadsheet on the Database computer – (Currently in the Chemistry Lab Managers Office Rm 202) for referral as required.
7. A folder containing electronic Microsoft Word, Excel and Access copies of all of the Hazardous Substance RA’s can also be found on the Chemistry Database computer as detailed above.

8. When the Risk Assessment is returned to you it should be kept in a secure place in the work area for referral as required.

9. Please refer to the extensive documentation found on the Chemistry file server at \corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\School of Physical Sciences\Chemistry\ChemBuildingSafety\Risk Assessment Information\Risk Assessment Guidelines/ for further information and guidelines.

10. These databases can be accessed by persons both within the Chemistry and by those in the other administrative units (Pharmacy, and CSL), however slightly different procedures are required as outlined below:

**Chemistry**

i. Access the database Computer in the Chemistry Lab Managers office.

ii. There is no password to log on.

iii. Find the shortcut called “Access 2013 64 bit Chemistry Risk Assessment Database”.

iv. When you open the file you will be prompted for a USERNAME which is ‘user’ (no quotes) and a PASSWORD which you leave blank. After the file opens you will find the Task, Dangerous Substances and Plant RA templates along with the Safe Work practices form (which MUST accompany each Task RA).

v. Please make sure all the information you enter is correct and the form complete before saving.

vi. Once the form/s have been completed, they must be printed, signed by all the participants and passed on to the Laboratory Manager (make sure to keep a copy in your workplace files).

vii. By using the EDIT button will be able to edit the RA after saving.

viii. You are also able to SEARCH the database for RA’s.

ix. Your RA number will generated automatically and will be on the top of the printed version.

x. The folder entitled 'Risk Assessment Guidelines' contains the information you need to complete these forms.

xi. Please contact Chemistry Laboratory Manager if you experience any difficulties or if there are things which do not work properly or require alterations to the database.

**Central Science Laboratory**

For access details see Appendix Y
Other Chemistry Building Occupants

i. Access the database Computer in the Chemistry Lab Managers office.

ii. There is no password to log on.

iii. Find the shortcut called “Access 2013 64 bit Chemistry Risk Assessment Database”.

iv. When you open the file you will be prompted for a USERNAME which is ‘user’ (no quotes) and a PASSWORD which you leave blank. After the file opens you will find the Task, Dangerous Substances and Plant RA templates along with the Safe Work practices form (which MUST accompany each Task RA).

v. Please make sure all the information you enter is correct and the form complete before saving.

vi. Once the form/s have been completed, they must be printed, signed by all the participants and passed on to the Laboratory Manager (make sure to keep a copy in your workplace files).

vii. By using the EDIT button will be able to edit the RA after saving.

viii. You are also able to SEARCH the database for RA’s.

ix. Your RA number will generated automatically and will be on the top of the printed version.

x. The folder entitled 'Risk Assessment Guidelines' contains the information you need to complete these forms.

xi. Please contact Mr Murray Frith if you experience any difficulties or if there are things which do not work properly or require alterations to the database.

12. Some general points to note:

i. The HSRA’s should be completed first, followed by the TRA and the SWP’s and/or the PRA.

ii. HSRA’s TRA’s, PRA’s and SWP’s can be printed by using the appropriate Print button and searching for your assessment using one of the defined fields such as, Number, Name, or CAS Number.

iii. These must then be signed and passed onto your supervisor and then the relevant laboratory manager.

iv. After all the signatures have been acquired the risk assessment should be filed in the work place for ready access by an authority.

v. Remember to include the names of all people using the risk assessment on the form, and make sure to include your name as the person completing the assessment.
CHEMICAL SAFETY

Definitions of chemical hazard
The terms “dangerous substances”, "dangerous goods", "hazardous substance", "harmful chemical", "poison", "toxic" and a range of other words are sometimes used interchangeably in reference to materials with a potential chemical hazard. However in order to provide some clarity to discussions it is necessary to understand the meaning given to specific phrases by chemical legislation, Australian standards and codes of practice. Within Australia the definitions that are relevant are those for the purposes of transport of dangerous goods (Australian code for the transport of goods by road and rail), use of dangerous substances/hazardous substances in the workplace (Approved criteria for classifying hazardous substances) and use and supply of poisons (Standard for the uniform scheduling of drugs and poisons). Much information regarding the hazards associated with a chemical can be found by referring to the Safety Data Sheet (SDS) - see Appendix B.

Be aware of the hazards of toxic chemicals
• Regard all chemicals as hazardous until you know otherwise
• Read the relevant SDS prior to use of any chemical

Chemicals can enter the body by at least three routes
• Via skin absorption from the liquid, solid or even gaseous state
• Via the respiratory tract, due to inhalation
• Via the gastrointestinal tract, following accidental ingestion

Chemicals can produce a wide range of damaging effects on tissue and organs. In the laboratory the greatest risk is of skin damage, followed by skin absorption and inhalation of chemicals. Some chemicals, such as strong acids and alkalis (e.g. chromic acid, sulfuric acid, nitric acid, sodium hydroxide) produce damage within a very short period of contact; others require prolonged, repeated contact before an effect is seen (e.g. liver damage and cancer by inhaled carbon tetrachloride, leukaemia by inhaled benzene, allergic contact dermatitis from some chemicals).

Avoid contact with chemicals
• If contact occurs with the skin, wash the affected area thoroughly for at least 20 minutes with soap (or detergent) and water
• Various types of gloves are available and the appropriate types (see the relevant SDS) are to be worn when handling toxic or corrosive chemicals and when washing up contaminated glassware
• Do not inhale fumes and vapours of chemicals. If a noxious gas, vapour, dust or mist is being used or produced, work in the fume hood. An efficient gas trap should also be used.
• Never taste or smell chemicals
• Do not use your mouth to fill a pipette; use a pipette filler

PPE
• See Appendix AA for Glove Chart
CHEMICAL CLASSIFICATION
Since 2012 Australia has implemented the Globally Harmonized System (GHS) of Classification and Labelling of Chemicals with a transition period of 5 years. Workplace chemicals will not need to be re-classified or re-labelled immediately. During the transition period, manufacturers may use either the GHS for classification (Globally Harmonised System of Classification and Labelling of Chemicals 3rd Revised Edition), labelling (National model Code of Practice for the Labelling of Workplace Hazardous Chemicals) and SDS (National model Code of Practice for the Preparation of Safety Data Sheets), or the previous Hazardous Substances [HOHSC:1008(2004)] and Dangerous Goods (ADG Code) arrangements for classifications, labelling [NOHSC:2012(1994)] and Material Safety Data Sheets [NOHSC:2011(2003)]. This applies to both new chemicals as well as existing chemicals. After 31 December 2016 all workplace chemicals must be classified according to the GHS and labels and SDS must be in accordance with the GHS as implemented under the WHS Regulations.

GLOBALLY HARMONIZED SYSTEM CLASSIFICATION
The GHS aims to provide a logical and comprehensive approach to defining Physical, Health and Environmental hazards of chemicals. It is the classification that a chemical receives under the GHS that determines the information required on its Labels and Safety Data Sheets. The GHS typically defines hazards by:
- Class, which defines the type of hazard
- Category, which indicates the degree of severity- Category 1 being the most severe.

Under the GHS, Hazard Classes fall into three groups:
- Physical
- Health
- Environmental

Physical Hazards tend to relate to physical threat or the potential for destruction, for example
- Explosives
- Flammable Gases
- Aerosols
- Oxidizing Gases
- Gases under Pressure
- Flammable Liquids
- Flammable Solids
- Self-Reactive Substances and Liquids
- Pyrophoric Liquids
- Pyrophoric Solids
- Self-Heating Substances and mixtures
- Substances which, in contact with water, emit flammable gases
- Oxidizing Liquids
- Oxidizing Solids
- Organic Peroxides
- Substances Corrosive to metals

Health Hazards tend to describe hazards that impact upon health:
- Acute Toxicity
- Skin Corrosion/Irritation
- Serious Eye Damage / Eye Irritation
- Respiratory or Skin Sensitisation
• Germ Cell Mutagenicity
• Carcinogenicity
• Reproductive Toxicity
• Specific Target Organ Toxicity – Single Exposure
• Specific Target Organ Toxicity – Repeated Exposure
• Aspiration Hazards

Environmental Hazards are hazardous to the general environment:
• Hazardous to the Aquatic Environment
  • Acute
  • Long Term
• Hazardous to the Ozone Layer

In addition to the GHS Hazard Classes, several additional classifications have been adopted in Australia:
• AUH001 – Explosive when dry
• AUH006 – Explosive with or without contact with air
• AUH014 – Reacts violently with water
• AUH018 – In use may form flammable/explosive vapour/air mixture
• AUH029 – Contact with water liberates toxic gas
• AUH031 – Contact with acid liberates toxic gas
• AUH032 – Contact with acid liberates very toxic gas
• AUH044 – Risk of explosion if heated under confinement
• AUH066 – Repeated exposure may cause skin dryness and cracking
• AUH070 – Toxic by eye contact
• AUH071 – Corrosive to the Respiratory Tract

Converting ADSG Code to GHS Classification:

e.g. Class 3 ( Flammable Liquids)

<table>
<thead>
<tr>
<th>Classification under the ADG Code</th>
<th>Physical State</th>
<th>Classification and hazard statements assigned under the GHS Classification Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 3.1 PG 1 Flammable Liquids</td>
<td>Liquid</td>
<td>Flammable Liquids Category 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H224 – Extremely Flammable Liquid and vapour</td>
</tr>
<tr>
<td>Class 3.1 PG 11 Flammable Liquids</td>
<td>Liquid</td>
<td>Flammable Liquids Category 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H225 – Highly Flammable Liquid and vapour</td>
</tr>
<tr>
<td>Class 3.1 PG 111 Flammable Liquids</td>
<td>Liquid</td>
<td>Flammable Liquids Category 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H224 – Flammable Liquid and vapour</td>
</tr>
</tbody>
</table>

• A substance or mixture with an ADG classification is (essentially) already classified for GHS physical hazards.
Conversion of Approved Criteria to GHS Classification:

e.g. R23 Toxic by inhalation to Acute Toxicity – inhalation

<table>
<thead>
<tr>
<th>Classification under the Approved Criteria [NOHSC:1008 (2004)]</th>
<th>Physical State</th>
<th>Classification and hazard statements assigned under the GHS Classification Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>T – Toxic: R23 – Toxic by inhalation</td>
<td>Gas</td>
<td>Acute Toxicity Category 3 H331 – Toxic if Inhaled</td>
</tr>
<tr>
<td>T – Toxic: R23 – Toxic by inhalation</td>
<td>Vapour</td>
<td>Acute Toxicity Category 2 H330 – Fatal if Inhaled</td>
</tr>
<tr>
<td>T – Toxic: R23 – Toxic by inhalation</td>
<td>Dust/Mist</td>
<td>Acute Toxicity Category 3 H331 – Toxic if Inhaled</td>
</tr>
</tbody>
</table>

- R-phrase to H-statement conversion
- GHS health hazards have a broadly similar scope to the Approved Criteria
- Note that there are some differences

DANGEROUS GOODS CLASSIFICATION

In the Australian Dangerous Goods (ADG) Code, (only used for transport of Dangerous goods within Australia), dangerous goods are divided into nine classes that are usually further subdivided. Each class is represented by a diamond-shaped class label that by a combination of colour, class description, class number and symbol indicates the principal danger of the material. Where a material has more than one type of danger, a subsidiary risk will also be assigned. Subsidiary risk labels are similar to the class label except that the class number is omitted.

Classes of Dangerous Goods

The class definitions of dangerous goods are mainly based on the acute or immediate hazard of the material that would arise in a transport accident.

Class 1 - Explosives

Explosives range from those of extremely high hazard (Class1.1 - substances and articles with a mass explosive hazard e.g. blasting explosives, ANFO, detonators) to those of relative safety (Class1.6 - extremely insensitive articles that have no mass explosive hazard).

Class 2 - Gases

Class 2 includes permanent gases (e.g. compressed nitrogen and argon), liquefied gases (e.g. LP gas and carbon dioxide), dissolved gases (e.g. acetylene), refrigerated gases (e.g. liquid oxygen) and aerosols.

- Class 2.1 Flammable gases (e.g. hydrogen, acetylene, LP gas and ethylene)
- Class 2.2 Non-flammable, non-toxic gases (e.g. air, helium and carbon dioxide)
- Class 2.3 Toxic gases (e.g. ammonia and methyl bromide)
Class 3 - Flammable liquids

Flammable liquids are liquids or mixtures of liquids containing solids in suspension or solution, which have a flash point of not greater than 60.5 °C when tested by the closed cup method (FPCC). Liquids with a flash point of greater than 60.5 °C are called combustible liquids. Combustible liquids are not classified as dangerous goods although their fire hazard is recognised in legislation and they are not taken into account when stored or transported with flammable liquids.

Class 4 - flammable solids etc.

Class 4 dangerous goods are sub-divided as follows:

**Class 4.1** Flammable solids, these comprise:
- Substances that under the conditions of transport are readily combustible or which can be ignited by friction (e.g. safety matches and red phosphorous);
- Self-reactive and related substances that are likely to undergo a strongly exothermal reaction; and
- Desensitised explosives that may explode if not sufficiently diluted (e.g. nitrocellulose)

**Class 4.2** Spontaneously combustible substances are those that are liable to spontaneously heat and ignite (e.g. white phosphorous, sodium dithionite and zinc dust).

**Class 4.3** Substances dangerous when wet are those materials that in contact with water emit flammable gases (e.g. sodium metal and calcium phosphide).

Class 5 - Oxidising agents and organic peroxides

are subdivided as follows:

**Class 5.1** Oxidising agents are substances that may readily liberate oxygen or promote oxidation of other substances - this process may start a fire or stimulate combustion of other materials (e.g. ammonium nitrate and calcium hypochlorite)

**Class 5.2** Organic peroxides are organic chemicals containing the peroxy group. They are thermally unstable substances that may undergo self-accelerating decomposition. They act as oxidising agents and may be liable to one or more of the following - explosive decomposition, very rapid burning, sensitive to impact or friction, react dangerously with other substances or cause damage to eyes (e.g. peroxyacetic acid and benzoyl peroxide).

Class 6 - Toxic and infectious substances

Class 6 dangerous goods are sub-divided as follows:

**Class 6.1** Toxic substances are substances that are liable to cause death or serious injury if swallowed, inhaled or absorbed through the skin (e.g. sodium cyanide and copper acetoarsenite, dichloromethane, hydroquinone and methanol).

**Class 6.2** Infectious substances are those substances known or reasonably suspected to contain pathogens, where pathogens are microorganisms likely to cause disease in humans or animals (e.g. HIV pathology samples)

Class 7 - Radioactive substances
Radioactive substances are those materials that spontaneously emit radiation, the specific activity of which is greater than 70 Becquerel's per gram. Labels for radioactive substances are determined by the radiation level at the surface of the package.

Class 8 - Corrosives
Corrosives are those solids or liquids that, by chemical action will cause severe damage when in contact with living tissue; or in the case of leakage, will materially damage or even destroy, other goods or the means of transport (in particular metals - tests are conducted on steel and aluminium). Examples of corrosives are sulphuric acid, sodium hydroxide, iron (III) chloride and mercury.

Class 9 - Miscellaneous dangerous goods and articles
Miscellaneous dangerous goods and articles are those substances that during transport represent a hazard, but which are not covered by other classes (e.g. fishmeal, polystyrene beads). It includes liquids transported at temperatures of greater than 100 °C and solids transported at temperatures of greater than 250 °C.

Packing groups
Dangerous goods, other than classes 1, 2, 6.2 and 7, have for packing (packaging) purposes been assigned to one of three packing groups according to the degree of hazard they present:

- Packing group I  high hazard
- Packing group II  medium hazard
- Packing group III  low hazard

The concept of packing groups is based on the need for the standard of packing (packaging) to match the level of hazard - packing group I substances require packages having the highest performance criteria. Flammable liquids are assigned a packing group on the basis of their flash point and boiling point. The packing group for poisonous substances is determined by reference to their lethal dose (LD50) for oral, inhalation and dermal routes of testing. Similar principles are applied to packing groups of other classes.

USE OF LIFTS FOR THE TRANSPORT OF DANGEROUS SUBSTANCES

- No one should ride in any lift in the presence of dangerous substances (eg. flammable liquids, acids, explosives etc.) in excess of 2.5 L (which are contained in a certified carrier) or gases (eg. cylinders of compressed or liquefied gases contained in a certified trolley) or cryogens (eg. Liquid nitrogen, helium, oxygen or dry ice) since these are all substances or goods which pose a danger in poorly ventilated and/or confined spaces.
- These restriction are not intended to stop anyone from using the lift to transport dangerous substances, gases or cryogens between floors. It just means that no one should be in the lift with these goods during that time. In other words the operation needs to be conducted in a safe manner with respect to the transport of dangerous substances with the lift travelling unaccompanied between the respective floors. This can be achieved by leaving the lift after loading and walking up to the appropriate floor to receive the goods.
- The most efficient way of operation requires two people with one dispatching and the other receiving the goods.
• When transporting gas cylinders only one cylinder should be loaded into the lift at a time. The cylinder must be properly secured on an approved (and stable) trolley during transport.
• It is important that only the freight elevator, located at the southern end of the chemistry building, be used to transport large quantities of dangerous substances.

**DANGEROUS SUBSTANCES (chemical hazards in the workplace)**

Dangerous substances are considered to be those substances that have the potential through being used at work to harm the health of persons in the workplace.

The criteria used for dangerous substances take account of the potential for long-term exposure of employees. Therefore substances having lower acute toxicity or which have significant chronic toxicity (e.g.: carcinogenicity) are included. The scope of the definition for workplace dangerous substances encompasses hazardous substances and scheduled poisons and those dangerous goods that give rise to health effects.

In Australia the requirement for dangerous substances in the workplace are set out in the following publications:

Globally Harmonised System of Classification and Labelling of Chemicals 3rd Revised Edition, which will eventually replace publications of the National Occupational Health and Safety Commission (NOHSC) that specify that a substance is a hazardous substance:

- If it is included in a list of hazardous substances in *the List of designated hazardous substances* [NOHSC:10005, (1999)];
- If it meets the health effects criteria for hazardous substances in *the Approved criteria for classifying hazardous substances*; or
- If a mixture, has hazardous ingredients exceeding defined concentration cut-off concentrations given in the *Approved criteria for classifying hazardous substances*.

Workplace use of chemicals includes production, handling, storage, transport and disposal.

**Handling of Dangerous Substances**

- This information is designed to assist work areas in complying with the *Managing Risks of Hazardous Chemicals in the Workplace, Code of Practice*, which came into effect in December 2012. This code is to be used in conjunction with the Australian Dangerous Goods Code (ADG) and the NOHSC Approved Criteria.
- Details of the University’s “Project/Task Risk Assessment & Control Procedures” and “Hazardous Substances Policy & Procedures” can be found at http://www.utas.edu.au/work-health-safety/compliance
- The aim of the regulations is to minimise the risk to health from work with dangerous substances, by:
  - ensuring adequate information about the substance is always given to employers, students and employees.
  - stipulating that assessments must be done to determine if there is a risk of exposure to dangerous substances.
  - if there is a risk of exposure, that it is controlled.
  - providing for the training of employees who could be exposed to dangerous substances in order that they may assess their level of risk, and assess and control their exposure.
The dangerous substances codes of practice involve -

- Identification of the hazardous substance,
- Assessing whether the use of the substance is a significant risk to staff and students' health and if so provide adequate induction and training,
- Implementation of appropriate control measures,
- Providing health surveillance if required under the regulations (see below)
- Keep appropriate records including a dangerous substances register
- Tasmanian state legislation (*Work Health and Safety Act 2012, Work Health and Safety Regulations 2012*) and (Hazardous Chemicals Requiring Health Monitoring, Safe Work Australia Guide) recognises a number of dangerous substances for which health surveillance is required, which include:

- Asbestos
- Crystalline silica
- 4,4’Methylene bis (2-chloroaniline) (MOCA)
- Vinyl chloride
- Isocyanates
- Organophosphate pesticides
- Acrylonitrile
- Benzene*
- Inorganic Lead
- Pentachlorophenol
- Inorganic chromium
- Inorganic arsenic
- Cadmium
- Inorganic mercury
- Thallium
- Formaldehyde*
- Polycyclic Aromatic Hydrocarbons (PAH)
- Creosote

*These chemicals require records to be kept of their use in the workplace.

If any of these substances are to be used in the workplace, a Risk Assessment must be carried out and it may be found that workplace monitoring for the substance is needed to be carried out by appropriately trained individuals. If the monitoring process finds that levels are high enough, a process of health surveillance may be required.

**Before starting any experiment you must**

- Carry out a Task Risk Assessment and Safe Work Practice on the procedure and have it authorised by your supervisor. If any substance to be used is hazardous, a Hazardous Substance Risk Assessment must **ALSO** be carried out. Also, if new plant is being purchased, a Plant risk Assessment must be completed.
- Ascertain the correct handling and storage procedure for all known chemicals used and produced in the experiment.
- Examine each step of the task for potential hazards and get the necessary safety equipment.
- Find proper procedures for safe disposal of all waste material from the experiment.

- **Note that dangerous substances will not be issued from the Section stores or ordered by the Laboratory Managers until Task and Hazardous Substances Risk Assessment reference numbers can be quoted.**
POISONS
These are substances that pose a special risk because they are used in the broader community (rather than just in the workplace) and are highly toxic, or designed to be used as pharmaceuticals. Hence they require special legislation. These substances are controlled by the Tasmanian Poisons Act 1971, which has been reviewed and amended by the Poisons Amendment Act 1997. This legislation regulates their labelling, storage and sale under a national standard, the Standard for the uniform scheduling of drugs and poisons, No. 16 (SUSPD) 1992. These poisons are divided up into categories that are known as schedules. Schedules 1 to 4 cover pharmaceutical products, 5 to 7 industrial and domestic products whilst schedule 8 is used for addictive drugs. If a schedule 7 poison is required to be brought into the workplace, a license will be required to be obtained from the Tasmanian Department of Health and Human Services prior to obtainment. This can be arranged by the appropriate Laboratory Manager.

RESTRICTED CHEMICALS
Certain chemicals are now classified as either chemical weapons (or derivatives of chemicals weapons), drug precursors or chemicals which have specific customs and excise requirements, and thus are now restricted. This means records must be kept for these compounds and purchase is now legislated by law. Further information on these is located on the University of Tasmania WHS website at: http://www.utas.edu.au/work-health-safety/compliance.

CHEMICAL STORAGE
• Chemicals must be stored in accordance with WorkSafe Australia recommendations. For example they should be grouped by compatibility, not initially by alphabetical arrangement. Oxidisers should be separated from organics, air/water reactives must be kept dry and inorganic cyanides should be stored away from acids. Check relevant SDS for incompatibility details.
• Volatile toxic substances should be stored in ventilated storage cabinets. When volatiles must be stored in a cooled atmosphere, explosion-proof refrigerators or cold rooms designed for this purpose must be used.
• Inventories of all chemicals held in the workplace must be kept up to date and any new substances bought into the area must be included in group/section inventories immediately that they arrive.
• All containers of chemical substances must be stored according to the University’s Chemical Substance Labelling Policy & Procedures (see http://www.utas.edu.au/work-health-safety/compliance)
• It should be noted that under the legislation a bottle with a label is considered full regardless of the level of its contents – if the bottle is indeed empty, then remove the label prior to re-use or disposal.

CHEMICAL LABELLING
• All chemical packages, containers, tanks or bulk stores must be marked to clearly show the identity and hazards of the goods stored. The labelling of packages is covered by several requirements - section 7 of the ADG Code for dangerous goods during transport, Labelling of Workplace Hazardous Chemicals, Code of Practice (115), December 2012 (WorkSafe Tasmania) and the Standard for the uniform scheduling of drugs and poisons for scheduled poisons.
• Labels of packages received direct from a supplier must contain information as specified by each of the above requirements.
Specific Requirements according to the GHS

- **Small Containers:**
  - written in English
  - product identifier
  - the name, Australian address, business telephone number of manufacture or importer
  - a hazard pictogram or hazard statement consist with the classification
  - any other information that is practical to include

- **Research Chemicals or samples for analysis:**
  - written in English
  - product identifier (actual name or recognised abbreviation or chemical formula, structure or reaction components)
  - a hazard pictogram or hazard statement consist with the classification

- **Decanted or transferred chemicals:**
  - written in English
  - product identifier
  - a hazard pictogram or hazard statement consist with the classification

- **Hazardous waste products:**
  - written in English
  - product identifier e.g. chlorinated solvent waste, flammable waste, heavy metal waste
  - the name, Australian address, business telephone number of manufacture or importer
  - a hazard pictogram or hazard statement consist with the classification
  - As much information about the identity of the constituents

Where chemicals are decanted or dispensed into other containers and the entire amount of the hazardous chemical will be used immediately, labelling of its container is not required provide:
- It is not left unattended by the person who decanted it
- The decanted chemical is used only by a person present at the decanting
- The container is rendered free from any hazardous chemical immediately after use, so the container is in the condition it would have been if it had never contained the chemical.

- Labelling must comply with University’s Chemical Substance Labelling Policy & Procedures (see http://www.utas.edu.au/work-health-safety/(out of date Jan 2014) refer to Labelling of Workplace Hazardous Chemicals, Code of Practice, December 2011 (Safe work Australia))
- Labelling in the Section can be carried out using the “Chemwatch” SDS program.
- Gas lines containing Dangerous Substances should be labelled appropriately

**Signal Words, Pictograms and Hazard Statements.**

Legislation outlines comprehensive requirements for the labelling of dangerous/hazardous Substances, Labelling of Workplace Hazardous Chemicals, Code of Practice, December 2011 (Safe work Australia))

Included in the information to be displayed on labels are Pictograms, Signal words and Hazard statements and precautionary statements derived from their SDS information. These are plain language descriptions of the hazards associated with materials and the safe working procedures required to work with them.
Signal Words
- DANGER – for more severe hazards
- WARNING – for less severe hazards

Hazard statements
Are prescribed statements that describe the nature and where appropriate the degree of the hazard.
- H224 – Extremely flammable liquid and vapour (most severe)
- H225 – Highly flammable liquid and vapour (less severity)
- H226 – Flammable liquid and vapour
- H227 – Combustible liquid (least severe)
- H318 – Causes serious eye damage
- H319 – Causes serious eye irritation

Precautionary Statements
Are intended to prevent improper storage and handling, and to reduce the adverse effects that may result. Precautionary statements cover, prevention, response, storage and disposal.
- P410 – Protect from sunlight
- P412 – Do not expose to temperatures exceeding 50ºC
- P403 – Store in well-ventilated place
- P501 – Dispose of contents/container to…. (in accordance with local regulations.)
- P370 + P380 – In case of fire: evacuate area

Example of a label

**Flammosol**

**Contains:**

**Aliphatic hydrocarbons 95%**

**Toxicole 5%**

500 ml

**DANGER**

Highly flammable liquid and vapour
Toxic if swallowed
Causes skin irritation

Keep away from sparks and open flames – no smoking.
Wear protective gloves and eye and face protection.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

If SWALLOWED: immediately call a POISON CENTRE or doctor/physician
Rinse mouth
If ON SKIN: Take off contaminated clothing and wash before re-use.
In case of fire: Use powder for extinction.

Refer to the Safety Data Sheet before use.

Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State
Telephone 1300 000 000
USE OF DUCTED FUME CUPBOARDS

Fume Cupboard Function and Usage
- A fume cupboard is essentially a ventilated box with one side being moveable to provide an adjustable opening. It provides air extraction to remove any fumes produced within the box. It is designed to have laminar flow through the front opening, i.e. the flow is to be even and non-turbulent through the open face of the cupboard.
- To obtain even air flow through the face of the fume cupboard baffles are generally installed at the back of the cupboard. These baffles are set to extract the air from two or more locations across the back of the fume cupboard. If the openings provided by the baffles are blocked by items stored in the cupboard then the airflow through the face of the cupboard can become uneven.
- Whenever anything is placed within the fume cupboard it introduces turbulence into the cupboard which may affect the containment and extraction of fumes. If a fume cupboard is not set up and used appropriately, fumes may escape out of the sash opening of the fume cupboard towards the user, especially with heavier vapours such as formaldehyde or chlorinated solvents.
- Fume cupboards draw air out of the rooms they are installed in. There needs to be an adequate volume of air available or the fume cupboard will not be able to draw a sufficient volume of air to function properly.
- Where the room is small or there are a large number of fume cupboards an additional supply of air, other than the normal room ventilation, may be required. This additional air is known as the make-up air.
- If the make-up air supply is not adequate or the make-up air is switched off then the fume cupboards may not be able to achieve the required face velocity.
- Alternatively if there is no make-up air and the room ventilation is switched off, there may be insufficient air volumes for the fume cupboards to achieve the required face velocity.
- The incoming air can deflected off an item placed in this zone at enough speed to escape from the cupboard. This can cause fumes to escape into the lab.
- This is of particular concern when fumes are generated within this zone as they may be captured by the deflected air. A person standing in front of the cupboard increases the probability of fumes entering the lab.
- The use of perchlorates is only permitted when conducted in the scrubbing fumehoods on Level 3 in Rooms 309 and 310.

Safe Fume Cupboard Work Procedures
The recently revised standard for fume cupboards AS/NZS 2243.8:2006 Safety in Laboratories Part 8: Fume Cupboards has placed the onus for safe use of fume cupboards on the user. This has been achieved by insisting that a risk assessment is carried out for each task to be performed within a fume cupboard.

FUME CUPBOARD RISK ASSESSMENT
General
A hazard identification and risk assessment process should be carried out concerning the chemicals and activities planned for a particular fume cupboard. This should be done prior to its purchase. The assessment should be reviewed at regular intervals to ensure its ongoing validity and whenever a change to the chemicals, processes or equipment is planned.
Liquid volumes
The spillage containment volume stated on the warning label shall be considered when assessing the maximum volume of liquids to be allowed in the fume cupboard at any one time. However, the spillage containment volume shall not be assumed to be the maximum volume of liquids allowed in the fume cupboard. Often the maximum volume will need to be set at a lower figure. A higher volume may be decided if incomplete containment of the spill does not pose a significant hazard. If there are flammable liquids involved, additional assessment shall be conducted in accordance with the Flammable Liquids clause below. Any limit shall be decided after all relevant factors have been taken into consideration, including but not limited to:

(a) the type of liquids being used;
(b) the volumes of each type of liquid being used;
(c) the pressure and temperature of each liquid during use;
(d) the likelihood of a spill (container shape and material, activities of operator);
(e) the potential of reaction between spills and other chemicals in the fume cupboard or displacement of flammable substances if other liquids are spilt within the fume cupboard;
(f) the risk to the operator if the spill is not contained within the fume cupboard.

Flammable liquids
The volume of flammable liquids to be allowed in the fume cupboard shall be assessed in relation to the factors in the Liquid Volumes clause and their particular risks, including

(a) physicochemical properties such as flashpoint, volatility and boiling point;
(b) the processes to be used, e.g. heating, mixing methods which may cause aerosols or increased vapour, distillation or evaporation; and
(c) risk of spread of fire or flame if a container or a spill ignites.

For some solvents the volume which may cause explosion or fire problems is quite small, a matter of millilitres, whereas others may be regarded as not requiring a limit using the above risk assessment. In such cases, the maximum volume of flammable liquid that may be placed in the fume cupboard at any one time should be 7.5 L/m² of bunded base area.

Warning label
A warning label that provides the limits for liquids determined by the risk assessment, or directs users of the fume cupboard to this information, shall be fixed to the fume cupboard. The information shall be readily accessible to the users of the fume cupboard and show the date of the risk assessment and an identifier linking it to the full report of the risk assessment.

General Fume Cupboard Working Procedures
• Before using a fume cupboard for the first time, staff and students must:
  - check that the flow rate reading on the test certificate meets or exceeds the flow rate requirement of 0.5 cubic metres per second (0.5 cm/s) and that the test was carried out less than 6 calendar months ago
  - locate where the failure warning alarm is and what it will sound like
  - locate the services emergency stop or fire damper to use in the event of a fire
  - locate the nearest phone, fire extinguisher/blanket, emergency shower or eyewash station, details of nearest available first aid providers

Hobart Chemistry Building Safety Committee
• Do not work within ten centimetres of the leading edge. The larger the item, the further back it needs to be within the fume cupboard to overcome the turbulence created by it. **Keep your head out of the hood!**
• Except when adjusting apparatus within the hood, keep the hood sash closed
• Do not place storage items behind the area you are working in. This is of particular importance where a Perspex blast screen or lead bricks are used for radioisotope work.
• Minimise the number of items stored in the fume cupboard (max 2.5L solvent).
• Maximum volume of solvent allowed to be kept in fume cupboard is 2.5 Litres.
• Do not put large equipment, such as ovens in the fume cupboard, as they block the baffles and produce regions of zero or low flow in the workspace.
• Minimise traffic past the front of the fume cupboard as this can cause turbulence that may result in fume escape.
• Do not open windows which may create draughts in the vicinity of the fume cupboard.
• If doors are within 1 metre of fume cupboards they should be kept closed during the use of fume cupboard.
• The make-up air supply and room ventilation should be on whenever the fume cupboard is in use.
• Use fume hoods whenever possible when handling chemicals and especially when directed to "Avoid inhalation of vapours" or to "Use with adequate ventilation"
• Fume hoods should not be used for storing chemicals or equipment
• Do not use fume cupboards with a porous bench surface (eg terracotta tiles) for work with radioactive material.
• Think ahead – prepare an emergency plan in the event of power failure or other unexpected occurrence such as fire or explosion in the hood
• Report any problems with fume hoods to the appropriate Laboratory Manager

**Fume Cupboard Performance**

Fume cupboards are required to be constructed and maintained in accordance with Australian/New Zealand Standard AS/NZS2243.8 – 2006 Safety in Laboratories - Fume Cupboards. This standard prescribes an adequate face velocity for the containment of fumes and a methodology for testing. There are 2 types of test to be carried out: **face velocity** and **smoke testing** at a minimum interval of 6 months.

*Face velocity* is the flow of air measured at multiple (5 or more) points at the sash opening with the sash opened fully as described in Appendix E of the standard. The flow is measured in metres per second (m/s). An adequate face velocity is defined as being an average of greater than 0.5 m/s across the face, with individual maximum and minimum readings being within +/- 20 % of the average. The Australian Standard recommends fume cupboard testing be done with a calibrated thermal anemometer (air flow meter).

*Smoke testing* is checking for eddies, irregular flow patterns or currents that could have fume flowing out into the laboratory, this test can be carried out using special smoke tubes (see Laboratory Manager) as described in Appendix F of the standard.
**CHEMICAL/GLASS DISPOSAL**

Dispose of unwanted chemicals, "sharps" and broken glass correctly

- Clean up immediately accidental spillages of chemicals on benches or the floor
- Chemicals that react vigorously with water should be decomposed safely in a fume hood before disposal
- Residue bottles (appropriately labelled) should be provided in each laboratory for flammable liquids and water-immiscible liquids, as well as acids. Such liquids must not be emptied into the sinks, toilets or storm drains. Do not mix chlorinated and non-chlorinated wastes, or acids. Once full, these bottles should be transported to the central waste until disposal is arranged.
- Since there are no facilities for disposing of chemicals locally, regular chemical waste collections are arranged with a mainland disposal firm.
- When containers of unwanted/waste chemicals are ready for collection a form should be completed with necessary details for advising the disposal company of relevant information (see Appendix J for a sample form).
- The completed form is then forwarded to the relevant Laboratory Manager prior to the waste collection.
- Clean broken glass and "sharps" must be placed in waste sharps/glass bins (not the wastepaper bins). Only chemically clean glassware is to be placed into the bins. This requirement means that, where necessary, any broken beakers or flasks must first be rinsed carefully to remove any residual chemicals. The washings should be placed into the appropriate residue container. The sharps bins can be emptied into the glass disposal bin outside the Chemistry loading bay, and the bins recycled.
- Broken "Quickfit" glassware should be cleaned and passed onto the laboratory technician.
- Broken glass or any other "sharps" contaminated with heavy metals must be disposed of as for other hazardous chemical waste.
- Solid wastes are to be placed in a waste container (white bucket) and suitably labelled.
- Do not place contaminated waste in the refuse bins, which are for clean paper waste ONLY; use the contaminated waste containers in each laboratory.

**FIRE RISK REDUCTION - ORGANIC SOLVENTS**

- Most organic solvents are flammable and/or toxic and should be treated as all other flammable and toxic chemical substances. Many common solvents can be ignited without a naked flame if their vapours contact a hot electric mantle, an electric light bulb, a room heater not visibly glowing, overheated electrical connections, etc. Carbon disulfide, diethyl ether, dibutyl ether, dioxan, light petroleum, heptane, cyclohexane and many others may thus ignite.
- Flammable solvents must be stored in a laboratory in approved fire-resistant storage cabinets, sited as far away from sources of ignition as possible.
- Reduce to the absolute minimum the quantities of flammable and/or toxic solvents used in chemical operations or held in temporary storage.
- When use of flammable solvents is intended, all potential sources of ignition must be kept from the working area. With carbon disulfide, ethers and petroleum, the vigilance must be extreme.
- Ethers must not be distilled, unless chemical tests show the absence of explosive peroxides.
- Transport flammable and toxic solvents carefully in stout glassware and in quantities comfortably within your control. 2.5 L and 4 L quantities should be carried in special carriers.
- Highly toxic and carcinogenic solvents should be used in fume hoods only, and any spillages on skin and clothes washed off immediately.
• Make sure you know where the fire extinguishers and fire blankets are and how to use them if you hold a current TasFire Fire Safety and Equipment Level 2 certificate.

• Flammable liquids should be stored only in specially modified refrigerators. Ordinary domestic type “fridges” should not be located in areas where flammable liquids may be used, as ignition and fire may occur from the normal sparking of ordinary switches and devices in such units.

• Never carry out distillations over naked flame.

Minimise fire risk

• Hotplates should be used in preference to gas burners when possible

• Heat proof boards are provided and are to be used under hot plates and gas burners

• If gas is to be used, before lighting a burner check that there is no flammable vapour (ether, petroleum, etc.) nearby

• The building is supplied with “LP gas” (mainly propane, denser than air). It is essential not to allow this gas to form explosive mixtures with air. Strike the match before turning the gas on. Turn off the burner when you have finished using it.

PREGNANCY AND WORK WITH CERTAIN CHEMICALS

• This information applies to laboratories or workshops where hazardous or potentially Dangerous Substances are used. The toxic effects of all substances are not known and exposure to chemicals should be minimised.

• Supervisors should provide the appropriate information to Staff members who inform them of their pregnancy.

• Employees should inform their supervisor of their pregnancy as soon as is practical.

• If you have any concerns at all about exposure to chemicals at work, you should seek advice from your supervisor, laboratory manager, building Manager, safety officer or employee safety representative, regardless of whether you are pregnant or considering pregnancy.

• Procedures of a general nature that ensure a healthy and safe workplace will provide protection in most cases, although there are some chemicals that need special consideration. Of major concern are mutagenic or teratogenic Chemicals - a limited number of chemicals are suspected of being mutagenic or teratogenic and exposure to these during pregnancy may result in DNA changes to the developing foetus leading to congenital abnormalities or abortion.

NB: For many chemicals such information is not available.

• The risk to health is related to the level of exposure. Infrequent exposure to low levels of chemicals is clearly less of a risk than frequent exposure to concentrated chemicals in poorly ventilated areas. The risk is also greater during early pregnancy. In the typical working environment at the University, exposure through inhalation is the most common route of exposure.

• Working in a fume cupboard which meets Australian Standard performance requirements or in some other ventilation enclosure should prevent exposure by inhalation. Skin absorption and ingestion are rarely significant routes of entry, provided that safe working practices are observed.

See appendix C for list of chemicals identified as being possible reproductive hazards.

• Generally speaking, exposure to any of the chemicals listed in Appendix C at levels below the recognised exposure limits should not present a health risk to the unborn foetus. Where chemicals have warning labels indicating carcinogenicity, further advice should be sought either
from the Material Safety Data Sheet for the substance, the supplier or the Work Health & Safety Unit on ext. 6298. Safety Data Sheets should be referred to prior to use of any chemicals in the workplace.

- If you become pregnant and work in a situation where you may become exposed to chemicals, you are advised to notify your ESR, department head, supervisor, laboratory manager or building manager immediately.
- Depending on the nature of your work and the risks involved, modified or alternative duties may have to be provided during your pregnancy. Any changes to your work will be of the minimum reasonably necessary to protect health and safety during your pregnancy. Alteration to work practices will only occur so far as it is reasonably necessary on health and safety grounds.

DISTILLATION OF SOLVENTS

- Old solvent stock and ethers must be tested for peroxides (use starch-KI paper) before distillation. It is important to note that having removed stabilisers by distillation, more rapid peroxide formation will occur during storage.

GAS CYLINDERS

- Gas cylinders must only be transported in properly constructed trolleys to which the cylinders must be securely strapped.
- In the laboratory, cylinders should be firmly secured to the bench or wall and not exceed 70 L.
- Do not use grease on gauges or connections as this may cause an explosion with O₂ cylinders.
- Use the proper regulator specified for a particular gas.
- Do not leave cylinder keys in place in cylinders of flammable gases when they are not in use.
- Update the Gas inventory label for your Laboratory located on the door to your laboratory.
- Cylinders not connected to apparatus must not be stored in a laboratory.

REDUCED TEMPERATURE HAZARDS

- Metals and liquids below –20°C can cause "burns" with pain, blistering, tissue loss and shock. Do not grasp cold metal surfaces.
- Glass Dewar vessels may implode. Protect vessels with suitable containers.
- Energy rich, explosive and/or flammable mixtures are easily created from the combination of liquid air or liquid oxygen and common laboratory materials (e.g. organic solvents, cotton wool, active charcoal).
- Cryogenic liquids and solids displace oxygen from the air and so should only be used in well ventilated areas.
- Liquid nitrogen (–196°C)
  - Never place this coolant around a trap containing both air at atmospheric pressure and an organic or combustible reagent. Liquid oxygen will collect inside and the combustible compound will explode immediately on contact with liquid oxygen. This hazard can easily arise when atmospheric air is admitted to a liquid-nitrogen cooled trap used for organic solvent retention. Do not admit air until the trap has warmed up a few degrees, and then remove the organic phase.
  - Never travel in a lift with containers of liquid nitrogen, full or empty, there is a risk of asphyxiation if the lift should become stuck.
  - Lifting and carrying 25 litre liquid nitrogen Dewar’s is a two-person task, and should not be attempted by a single individual. Note: The weight of a full 25 litre Dewar is approximately 28kg. One litre of liquid nitrogen weighs approximately 0.8 kg.
• Pour only into containers suitable for holding liquid nitrogen (i.e. not glassware etc.). All warm containers should be filled slowly to minimise thermal shock.
• Use a filling funnel when pouring liquid nitrogen into a Dewar or small container.
• Use only the stopper supplied with the Dewar. Inadequate venting can result in excessive gas pressure that can damage or burst a container.
• Never plug small containers of liquid nitrogen; cover them when not in use to prevent accumulation of moisture and plugging of the container outlet with ice.
• Ensure only personnel familiar with the above safe handling procedures have access to liquid nitrogen and cryogenic storage vessels.
• Always transport Liquid Nitrogen in an open Vehicle, never enclosed.
• Vehicle transported Dewar must always be restrained in the back of the vehicle.

• Solid CO₂ (–78°C)
  • Break up in a cloth or towel. Use gloves when handling pieces.

• Solid CO₂ - Acetone slush (–78°C) (and similar preparations with alcohol etc.)
  • First extinguish all ignition sources near the working area, and then add in batches a few mL of acetone to solid (crushed) CO₂ in a Dewar. After use allow the Dewar to warm up in a fume hood. Do not re-bottle the acetone for 24 hours.

• Liquid ammonia (–33°C) and liquid SO₂ (–10°C)
  • Use in fume hood only. Have a suitable respirator handy. Spillage or a vigorous reaction can easily release a high concentration of suffocating gas, which also damages eyes and nasal passages.

WORKING WITH GLASS

Never apply undue pressure or strain to any piece of laboratory glassware
Glass is a very hard but brittle material and breaks readily under stress or strain. Most serious cuts result when glass tubing shatters while being forced into rubber or plastic tubing or through stoppers. Serious injuries (severed tendons) can also result from pushing stoppers down into the necks of flasks. Deep cuts can be avoided by taking the following precautions:
• When inserting glass tubing or pipette or thermometer into rubber tubing, a rubber stopper or pipette filler make sure that the hole is of the correct size and always lubricate the glass with water or a drop of glycerol or grease.
• When inserting glass tubing into plastic tubing always soften the end of the plastic tubing by dipping it into hot water for a few seconds.
• Always use two hands for these operations and keep your hands practically touching.
• Additional protection may be obtained by putting a towel or cloth between hand and glass.
• Never use force to remove plastic or rubber tubing from glass tubing. If necessary, cut the plastic or rubber away from the glass.
• Do not force an oversized stopper into a flask. A cork may be made smaller and softer by rolling it.
• Never heat glassware suddenly or unevenly. If you must use a flame to reflux or distil a liquid, use a gauze mat. Do not heat stoppered vessels.
• Do not force seized ground glass joints, the apparatus may shatter. Seek help from your supervisor, laboratory manager, or the glass workshop staff.
USE OF VACUUM SCHLENK LINES

The hazards involved with the use of vacuum Schlenk lines include the following:

- Usually, Schlenk vacuum lines are made of glass. If there are significant cracks in the glass there is a chance of implosion when a vacuum is applied. If any cracks develop, dismantle the line and get them repaired by the glassblower, ensuring that the glass is clean and free of grease. Another cause of implosion can be breakage of the glass while in use because it is not sufficiently secured. Make sure that the vacuum line is secure on a rack and is not prone to movement prior to use. This may require the use of several clamps. Readjust each clamp regularly so there is no stress on the glass due to small movements over time.

- The use of cryogenic liquids in the vacuum traps can lead to burns. See the section of this manual on use of cryogenic liquids.

- Condensation of gases in the vacuum trap can be very hazardous for two reasons. Many gases will condense at liquid nitrogen temperature, the main cryogen used. If this happens and the level of liquid nitrogen drops, the condensed gases will warm and thus expand, possibly resulting in the glass line exploding because of the increased pressure. Another danger of condensed gases involves flammable gases, including condensed oxygen from the air, which can result in a fire if they are allowed to ignite. **THE COMBINATION OF LIQUID OXYGEN AND FLAMMABLE ORGANIC SOLVENTS CAN EXPLODE EVEN WITHOUT AN IGNITION SOURCE.**

- When the vacuum line is being set up for the first time, check the inlets/outlets of the pump to see which is the vacuum inlet and which is the exhaust to ensure that you don’t link your vacuum manifold to the exhaust outlet. This will result in considerable increased pressure in the glass manifold, resulting in explosions or dangerous blowing out of taps.

With these hazards in mind, the following outline for the use of Schlenk lines is proposed:

**Turning on the vacuum line**

1. Ensure all taps are closed to so that there are no leaks to the atmosphere which will result in air being sucked through the line
2. Turn pump on. Ensure that there is a vacuum and that no air is being sucked through the line. If you have a vacuum gauge, check the vacuum that is being generated, otherwise get to know what sounds your pump makes when it is pulling gas and when a vacuum is attained
3. Fill reservoir around the trap. The trap is used to condense any solvents etc. before they enter the pump. If the pump is continually subjected to solvents etc., it will seize. The best way to fill the reservoir with liquid nitrogen to prevent burns is to have a reservoir in place and fill it from a second one. Be careful not to allow liquid Nitrogen to gather in folds of clothing as this can lead to burns. The liquid nitrogen boils vigorously as it cools the glass trap and spits considerably. The splashes can burn your skin. You can also use protective gloves to avoid contact from the splashes. The level of liquid nitrogen needs to be monitored during the prolonged use of the vacuum line as it evaporates over time. The amount of condensed solvent in the trap is hard to
see. Take note of how much solvent is collected during the day and do not allow it to potentially block the trap

If these steps are followed, the condensation of oxygen is avoided and the risk of burns from cryogenic liquids is reduced.

**Turning off the vacuum line:**

1. Take away the liquid nitrogen reservoir
2. Open release valve to allow air into the vacuum line
3. Turn off pump

If these steps are followed, the condensation of oxygen is avoided. Returning the line to atmospheric pressure also avoids the suck back of hot pump oil into the line, which is also hazardous if it were to come in contact with condensed flammable liquids in the trap

**ELECTRICITY, GAS AND WATER**

- All electrical equipment must be correctly wired and earthed and inspected by a qualified person before it is put into service.
- A regular process of testing and tagging of electrical equipment must be done for all portable items.
- When gas-heated equipment is used it is essential to have adequate ventilation.
- All water connections should be made secure using appropriate tubing. For experiments of long duration stainless steel clips should also be used.
- Gas lines containing Dangerous Substances should be labelled appropriately.
- With the exception of services to authorised experiments the last responsible person in a given area (private offices as well as laboratories are included) of the building should see that all services have been turned off before leaving.

**RADIATION HAZARDS**

- Only students and staff specifically noted on the University of Tasmania's Radiation site License are authorised to deal with radioactive material or electronic products.
- Consult the Laboratory Manager before planning any experiments involving radiation (from radioisotopes, lasers or X-rays).
- Be both aware and alert to radiation hazards when working in other laboratories where radiation is generated.
- Consult the appropriate radiation safety officer in each area before using such equipment (Mr Murray Frith/Dr Michael Gardiner in Chemistry, Dr Peter Traill in Pharmacy, and Dr Evan Peacock in the CSL).

**NMR MAGNETIC FIELD**

- Persons with pacemakers or metal prosthetics must stay at least 2.8 m (9 ft) away from the NMR magnets in the CSL. It is advisable also to keep any magnetic objects such as watches or credit cards at least 1.5 m from the magnet.
- Prior to use of any NMR instrument, instruction on safe use should be obtained from the personnel in charge of the instrument (Dr James Home, Dr Evan Peacock in the CSL).
BIOSAFETY and BIOLOGICAL HAZARDS

All conduct with biosafety relevant material should be performed according to Good Laboratory Practice (GLP) safety guidelines and under the regulations and recommendations set out by the National Health and Medical Research Council (NHMRC).

Work with known human pathogens is not allowed in the Chemistry Building. Specialized laboratories are available for this purpose at the University of Tasmania, Medical Sciences Precinct (MSP).

Overall, to ensure the safety of the investigator as well as all other lab users, ALL work involving potential exposure to biological material should be carried out under the assumption that the material is potentially infectious! This involves the prevention of direct contact with the biological material or solutions or equipment that was in contact with the biological material.

It is therefore required that ALL work with biological material has to be carried out in a Class II biosafety hood and that personal protection is mandatory which includes a closed (!) lab coat, gloves, safety glasses and mouth mask.

ALL biological material or solutions or equipment that was in contact with the biological material has to be regarded as biohazard material. Therefore, all solutions have to be either neutralized with 10% bleach for at least 3 hours or sterilized by autoclaving. All disposable consumables have to be collected in designated double-bagged autoclave bags. The bags have to be securely closed and sterilized using appropriate autoclave settings before transferred to the biohazard bin for incineration.

To prevent one of the most common forms of microbial accidents, the use of sharps or needles has to be strictly avoided when working with biological material. If the use of sharps or needles cannot be avoided, under no circumstance are needles to be recapped. Instead, they have to be collected in designated lockable sharps containers and transferred in the closed status into the biohazard bin. The same procedure also applies for the use of disposable glass Pasteur pipettes. These pipettes are NOT to be disposed of through the biohazard bags as they can pierce the plastic autoclave bags and pose a serious risk to the personnel handling these bags.

One of the major risks of dealing with biological material is the inhalation of aerosols. Therefore, protocols to prevent aerosol formation and their physical isolation (opening of isolation containers only within a class II biosafety cabinet) have to be routinely implemented.

Note: chemical fume hoods are not designed to appropriately deal with biological material. Release of biological material inside a fume hood can contaminate not only the hood itself but also the entire ducting system and represents a hazard for all laboratory users.

Especially, human blood, blood products, body fluids and tissue samples should be treated as infectious. If work necessitates procedures dealing with any primary human derived samples, workers must be adequately instructed on safe work practices, specifically the use of isolation (physical and chemical) and decontamination procedures, by a fully competent supervisor. Moreover it is mandatory that users that come in contact with human samples have to be vaccinated against Hepatitis B as outlined in the 2014 version (10th Edition) of the NHMRC Immunisation handbook (Page 172). It is the responsibility of the individual supervisor that students working with primary human samples are vaccinated before the onset of practical work. Established human commercially available cell lines are not primary human samples.

If in doubt, ask someone that is experienced, trained and qualified in the use of biological material before you start any procedures.

• Refer also to the University’s policies and procedures on Zoonoses and Animal-Based Hazards, Management of Sharps in the Workplace, HIV/AIDS and, Hepatitis A, B and C at http://www.utas.edu.au/work-health-safety/compliance.

Hobart Chemistry Building Safety Committee
MANUAL HANDLING

- The WHS unit's policy site at http://www.utas.edu.au/work-health-safety/home should be consulted for information regarding manual handling procedures.
- If necessary, a Safe Manual Handling Checklist General Risk Identification form can be downloaded from this site for completion to determine risk associated with a particular manual handling procedure.
- Where manual handling is identified as a risk which cannot practicably be eliminated, appropriate training should be undertaken.

ERGONOMIC SAFETY

- It is important to ensure that your workstation is set up in a manner that puts you at least risk of injury from occupational overuse and other ergonomic hazards.
  - For further details refer to the University's “Guidelines for the Use of Screen Based Equipment” policy at http://www.utas.edu.au/work-health-safety/compliance.
  - See Appendix AB

FIELD WORK

- All fieldwork must have a Risk Assessment completed prior to the work commencing.
- All field work is to be registered through FieldTeq risk system
- For further details refer to the University's “Field Activity Policy” located at http://www.utas.edu.au/work-health-safety/compliance.

ROOM HEATING

- Use approved forms of heating only. Consult the relevant Laboratory Manager for details.

WORKPLACE SAFETY INSPECTIONS

- Regular checks (on a monthly basis) on the safety of the workplace is essential to ensure that issues do not go unnoticed.
- Safety Inspection Checklists and Corrective Action Request (CRA) forms (see Appendix M) should be used at the end of each month to highlight any safety issues that require attention. The checklists will be issued as a cycle of three lists which cover the Universities requirement of three monthly inspections in smaller parts.
- Office spaces will be inspected every 6 months and staff will be sent the checklist by email.
- These inspections will coincide with the Safety Drinks morning tea sessions where WHS issues will be discussed with the building as a whole.
- After the checklist and CRA’s have been completed they must be signed and passed on to the relevant laboratory manager who must sign it and address/assign, as appropriate, any issues that have been raised. A copy of these forms will then be passed back to the area supervisor.
- The completed checklists must be held by the area supervisor so they can be checked for completion of suggested tasks when the Chemistry Building Safety Committee carries out one of its regular safety audits.
- Each work area to be inspected will be given at least 2 weeks notice of the intended inspection. After the checklist has been completed it will be signed and passed on to the area supervisor, at a meeting with the chairman of the CBSC, who must sign it and address as appropriate any issues that have been raised. The completed checklists must be held by the supervisor so they can be checked for completion of suggested tasks when the Building Safety Committee carries out its next safety audit. A list of completed tasks must be submitted to the chairman of the CBSC for reporting purposes.
Three different forms are available for these inspections, namely: Laboratory; Workshop; and Administrative, depending on the type of work area to be inspected.

CONTRACTOR SAFETY

- Any outside contractor carrying out work within the building should have attended the University's contractor safety training course as detailed in the WHS Unit's policy page at http://www.utas.edu.au/work-health-safety/key-risks/contractor-management.
- Details of the contractor's activities should be advised to the work area's contact person (usually the person who has requested the work), the Laboratory Manager, the Building Manager, the section Administrative Manager, and the floor technician on which the work is being performed, so assessment can be made of potential exposure to hazards.
- The contractor must log on and off with Physical Resources and at the reception to the Chemistry Building where a badge will be issued to ensure that their presence on campus is known.
- All new contractors must undergo a safety induction prior to working in the Chemistry building. These inductions will be performed by the Laboratory Managers in each area, or in the case of Chemistry, the Building Manager in the absence of the Chemistry Laboratory Manager.
- See the section on Procedures for Contractors on Page 27 of this manual.
• GENERAL SAFETY GUIDELINES

Familiarise Yourself with the Evacuation Procedure and the Location of:

- Fire extinguishers.
- Fire blankets.
- Safety showers.
- Emergency eye wash stations.
- Emergency Exits.

Minimise Fire Risk.

- Hotplates should be used in preference to gas when possible.
- Heatproof boards are provided and are to be used under hotplates and gas burners as instructed.
- If gas is to be used, before lighting a burner check that there is no flammable vapour (ether, petroleum, etc.) nearby.
- The building is supplied with "LP gas" (mainly propane, denser than air). It is essential not to allow this gas to form explosive mixtures with air. Strike the match BEFORE turning the gas on. Turn off the burner when you have finished using it.

Avoid Contact of Chemicals.

- If contact occurs with the skin, wash the affected area thoroughly with soap (or detergent) and water, followed by the specific procedures and instructions given in the SDS for the specific compound.
- Any contact with a chemical must be reported IMMEDIATELY to your supervisor/laboratory manager/first aid officer, who will assess the situation, and either apply first-aid or call for a first-aid officer/doctor, if deemed necessary. In order to document the incident a report must be completed and passed on to your supervisor who will forward the form to the ESR and the responsible officer.
- Rubber gloves are to be worn when handling chemicals and when washing up contaminated glassware.
- Do not inhale fumes and vapours of chemicals. If a noxious gas or vapour is being used or produced, work in the fume cupboard. An efficient gas trap may also be used.
- Do not use your mouth to fill a pipette; use a pipette filler.
- Always wash your hands on leaving a Laboratory.

Never Apply Undue Pressure or Strain to Any Piece of Laboratory Glassware.

- Due to the risk of serious injury or destruction of the glassware, please contact your supervisor or a laboratory technician to assist with this procedure.
Dispose of Unwanted Chemicals and Broken Glass Correctly.

Waste bins are provided at each bench for waste paper only. Unwanted solids should be made unreactive and placed into appropriately labelled waste containers or washed down the sink with copious water as appropriate.

Chemicals that react vigorously with water should be safely decomposed in the fume cupboard before disposal.

Residue bottles are provided in each laboratory for flammable and for water immiscible liquids as well as waste acids. Such liquids must not be emptied into the sinks. Do not mix chlorinated and non-chlorinated wastes, or acids.

Mineral acids should be suitably diluted before washing down the sink with copious quantities of water.

Broken glass must be placed in glass waste bins (not the wastepaper bins).

No chemicals/chemical compounds or contaminated paper, containers, etc. are to be placed in the refuse bins – use the special designated waste containers in each laboratory as directed by your supervisor or relevant authority.

Report All Injuries and Accidents to the Staff Member in Charge of the Class.

Appropriate action can then be taken.

A First aid kit is available in each laboratory. Dr Andrew Grosse (Level 4), Dr Thomas Rodemann (Level 4), Dr Rosanne Guit (Level 4), Ms Juanita Westbury (level 4), Mr Graham Meredith (Level 3/4), Dr James Horne (Level 3), Mr Brendon Schollum (Level 3/4), Mr Murray Frith (Level 2), Mr Tony Whitty (Level 2), Dr Peter Traill (Level 2), Mrs Sandy Holmes (Level 2), Ms Melissa Aubrey(Level 2), Dr Karsten Goemann (Level 2), Mr Paul Waller (Level 1) are trained first aid officers. Portable and large emergency first aid kits for Chemistry are available from Mr Murray Frith (Level 2).

An incident report must be completed for all accidents/incidents/near misses, see Appendix H.

Unattended Reactions and Apparatus.

Permission must be obtained from your supervisor before any items/experimental apparatus are left unattended. The "Unattended Experimental Apparatus Form" (see Page 24 of this manual) must be completed, signed and placed nearby, and on the door of the laboratory. If you are unsure about whether your items can be left unattended or require a form, please consult your supervisor, or other relevant authority, before leaving.
Information available in Chemistry

- Sigma-Aldrich library of chemical safety data (1988) Laboratory Manager (Rm202)
- The Merck index, 13th edition (2001) Laboratory Manager (Rm202)
- Sax's Dangerous Properties of Industrial Materials (1992) Laboratory Manager (Rm202)
- Destruction of Hazardous Chemicals in the Laboratory (1994) Laboratory Manager (Rm202)
- Hazardous Laboratory Chemicals disposal guide (2003) Laboratory Manager (Rm202)
- Chemwatch GoldFFX Chemical Database software Available via the WHS web site.
- Australian Standard documents (various) Laboratory Manager (Rm202)
- Tasmanian Work Health and Safety Act 2012 Laboratory Manager (Rm202)
- Tasmanian Work Health and Safety Regulations 2012 Laboratory Manager (Rm202)
- Information may also be obtained from Chemistry's www page
  http://www.utas.edu.au/chemistry/quick-links/staff-and-student-resources/students/safety
- Chemistry Building Safety Manual On-Line
- Safety Induction and Training Programs
  www.utas.edu.au/mylo/

Information available on Relevant Internet Sites

- UTas WHS Unit http://www.utas.edu.au/work-health-safety/
- Standards Australia http://www.standards.org.au
- Workplace Safety Australia http://www.worksafe.com.au

Information available in the University Libraries

- A comprehensive guide to the hazardous properties of chemical substances (Pradyot Patnaik, 1992) SciTech Ref RA 1211.P38
• Registry of toxic effects of chemical substances
  (National Institute for Occupational Safety and
  *This corresponds to the RTECS number in
  Sigma/Aldrich catalogues.*

• Dangerous properties of industrial materials
  7th edition (N Irving Sax, 1989)SciTech Ref T 55.3.H3S3

**Information is also available from the University Work Health and Safety Unit – 6298**
Appendix a

GLOVE SELECTION CHART

This glove selection guide has been created with short term use in mind. In most cases, any glove is better than no glove as it gives you a removable barrier. Remember, gloves are much cheaper than your health. If you get something on a glove, throw it out and get a new glove. Gloves, like any PPE, are a last line of defence. Just because you are wearing gloves doesn’t mean you are safe.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Latex</th>
<th>Nitrile</th>
<th>Polyethylene (PE)</th>
<th>Chloroprene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic Acid (glacial)</td>
<td>Fair</td>
<td>Poor</td>
<td>Good</td>
<td>Inadequate</td>
</tr>
<tr>
<td>Aqua Regia</td>
<td>Polyethylene</td>
<td>Inadequate</td>
<td>Do Not Use</td>
<td>Poor</td>
</tr>
<tr>
<td>Hydrochloric Acid (10-13 M) (10-26%)</td>
<td>Amn</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Nitric acid [1:2 Nitric:Sulfuric]</td>
<td>Polyethylene</td>
<td>Inadequate</td>
<td>Do Not Use</td>
<td>Poor</td>
</tr>
<tr>
<td>Nitric acid 26% [1 M]</td>
<td>Latex/PE/Chloroprene</td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>Nitric acid 76% [1 M]</td>
<td>Latex/PE/Chloroprene</td>
<td>Fair</td>
<td>Do Not Use</td>
<td>Fair</td>
</tr>
<tr>
<td>Phosphoric Acid (85%) [1.8 M]</td>
<td>Amn</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Sulfuric Acid (98%) [9 M]</td>
<td>Amn</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Sulfuric Acid (90%) [2 M]</td>
<td>Polyethylene</td>
<td>Do Not Use</td>
<td>Do Not Use</td>
<td>Good</td>
</tr>
<tr>
<td>Ammonium Hydroxide [15 M]</td>
<td>Amn</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Sodium Hydroxide solution 10% [12.5 M]</td>
<td>Polyethylene</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
</tr>
<tr>
<td>Hydrogen Peroxide [30%]</td>
<td>Amn</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Acetone</td>
<td>Polyethylene</td>
<td>Good</td>
<td>Inadequate</td>
<td>Good</td>
</tr>
<tr>
<td>Acetone Ether</td>
<td>Latex/PE/Chloroprene</td>
<td>Good</td>
<td>Inadequate</td>
<td>Good</td>
</tr>
<tr>
<td>Chloroform</td>
<td>Polyethylene</td>
<td>Inadequate</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>Cyclohexane</td>
<td>Nitrile/Polychloroprene</td>
<td>Do Not Use</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Dichloromethane</td>
<td>Polyethylene</td>
<td>Poor</td>
<td>Inadequate</td>
<td>Good</td>
</tr>
<tr>
<td>Dioxin Ether</td>
<td>Nitrile/Isopropyl Alcohol</td>
<td>Inadequate</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Dimethyl Sulfone (DMSC)</td>
<td>Polyethylene</td>
<td>Fair</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>Dimethylformamide (DMF)</td>
<td>Latex/Polychloroprene</td>
<td>Good</td>
<td>Inadequate</td>
<td>Good</td>
</tr>
<tr>
<td>Epoxy</td>
<td>Amn</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Ethyl Acetate</td>
<td>Polyethylene</td>
<td>Fair</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>Heptane</td>
<td>Nitrile/Polychloroprene</td>
<td>Inadequate</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Hexane</td>
<td>Nitrile/PE/Chloroprene</td>
<td>Poor</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Isopropanol (Isopropyl Alcohol)</td>
<td>Amn</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Methanol</td>
<td>Amn</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Petroleum spirits 60-80</td>
<td>Nitrile/PE/Chloroprene</td>
<td>Poor</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Tetrahydrofurans (THF)</td>
<td>Polyethylene</td>
<td>Inadequate</td>
<td>Do Not Use</td>
<td>Good</td>
</tr>
<tr>
<td>Toluene</td>
<td>Polyethylene</td>
<td>Poor</td>
<td>Poor</td>
<td>Good</td>
</tr>
</tbody>
</table>

Notes:
- Natural rubber latex is known to cause irritant dermatitis and may also cause allergic contact dermatitis in some individuals.
- Nitrile and nitrile ester allergies are far less common and thought to be caused by accelerators used in production.
- Polyethylene is far more prone to cause allergy. However, they may be treated with antiallergic agents which some people are sensitive to.
- Polyethylene gloves are also more prone to tearing than the other gloves and wear in any glove makes it useless.
- Any glove worn for extended periods can cause sweating due to a lack of ventilation. This can cause contact urticaria (commonly referred to as hives) which many people interpret as an allergy. While it isn’t an allergy it is very irritating and can produce a burning or itching sensation.
COMPARE THE COMFORT AND SAFETY FEATURES OF EACH CHAIR WITH THIS DIAGRAM

Adjustable-height backrest.
1. Pronounced lumbar support roll

A well padded seat.

Woven fabric upholstery for general use.

Vinyl for:
- Chemical;
- Biological;
- Radiation laboratories

Easily accessible adjustments.

2. Seat height adjustment lever
3. Seat and backrest tilt lever

Five star base with swivelling castors for carpeted floors.

Glides are recommended for hard surface flooring
Appendix B  SAFETY DATA SHEETS (SDS’s)

• A material safety data sheet (SDS) is written information about a particular chemical.

• A material safety data sheet includes important information (for a specific chemical) about:
  - the identity of the substance
  - its physical and chemical properties
  - any potential health risks associated with its use
  - correct instructions on how to use and dispose of the substance
  - storage information
  - any special codes for emergency services in case of a mishap when using the substance

• All chemical suppliers are required to provide Safety Data Sheets to the user for each chemical that they supply, if requested.

• The SDS information is usually related to use of the substance in an industrial situation and so recommendations must be assessed for appropriateness in the Risk Assessment process if the substance is used in our workplace.

• It is essential that you make a practice of reading Safety Data Sheets before you:
  - order a chemical
  - handle unfamiliar chemicals
  - start a new routine
  - clean up chemicals
  - dispose of chemicals

Note: Sources of SDS information in the building include:
  - Chemwatch Gold FFX: access via the Internet: See Utas WHS site.
  - Sigma-Aldrich Internet site: https://www.sigma-aldrich.com
  - Contacting other chemical suppliers directly
  - Accessing the Chemistry Intranet site: http://www.utas.edu.au/chem/chemsafety.htm

The following is an example of the standard format from the Worksafe Australia Code of Practice: Preparation of safety data Sheets for Hazardous Chemicals (2012).

A safety data sheet must:
• be in English
• contain unit measures expressed in Australian legal units of measurement under the National Measurement Act 2009 (Commonwealth)
• state the date it was last reviewed, or if it has not been reviewed, the date it was prepared
• state the name, Australian address and business telephone number of the manufacturer or the importer
• state an Australian business telephone number from which information about the chemical can be obtained in an emergency.

A safety data sheet for a hazardous chemical must state the following information about the chemical:
• Section 1 - Identification: Product identifier and chemical identity
• Section 2 – Hazard(s) identification
• Section 3 - Composition and information on ingredients
• Section 4 - First-aid measures
• Section 5 - Fire-fighting measures
• Section 6 - Accidental release measures
• Section 7 - Handling and storage, including how the chemical may be safely used
• Section 8 - Exposure controls and personal protection
• Section 9 - Physical and chemical properties
• Section 10 - Stability and reactivity

Hobart Chemistry Building Safety Committee
Chemicals which are generally for domestic use and considered safe in the home may present greater risks in the workplace depending on the manner and quantities in which they are used. This is particularly relevant, for example, where domestic cleaning chemicals are purchased from a supermarket and used in the workplace environment. You should always follow label directions. However, if you are using a domestic chemical in a manner different to normal household use, you should obtain the SDS in order to determine the level of risks to workers and the appropriate controls. The SDS should contain more detailed information on hazards and risks, for example, on incompatibilities with other chemicals and risks in enclosed areas.
Appendix C  SOME TYPICAL CHEMICAL HAZARDS
(adapted in part from the University of Pennsylvania Chemistry Hygiene Plan)

Carcinogens
• Carcinogens are substances that may cause cancer. Compounds that are directly responsible for causing cancers are called primary carcinogens. Others not directly responsible for causing cancers, but whose metabolic products actually lead to cancer formation are referred to as pre-carcinogens. Chemicals are generally identified as potential carcinogens by a test known as the Ames test. This is test for mutating ability and is only a rough guide as to whether a substance will be carcinogenic in the body.
• Common carcinogens with which you may come in contact include formaldehyde, ethylene amine, ethylene oxide and chloroform.
• The University of Tasmania’s policy on scheduled carcinogens can be found at http://www.utas.edu.au/work-health-safety/
• Note that any process involving the use of a scheduled carcinogen requires a Risk Assessment to be prepared and a copy submitted to the WHS unit via the Section “Hazardous Substance Coordinator” – Mr Murray Frith for Chemistry, Dr Peter Traill for Pharmacy and Mr Kevin Jacobson for the CSL.

Oxidisers
• Oxidising chemicals are materials that spontaneously evolve oxygen at room temperature or with slight heating or promote combustion. This class of chemicals includes peroxides, chlorates, perchlorates, nitrates, and permanganates. Strong oxidisers are capable of forming explosive mixtures when mixed with combustible, organic or easily oxidised materials. Strong oxidisers include:
  - ammonium perchlorate
  - barium peroxide
  - calcium chloride
  - chlorine trifluoride
  - chromic acid
  - fluorine
  - magnesium peroxide
  - perchloric acid
  - potassium chloride
  - propyl nitrate
  - sodium chloride
  - sodium perchlorate

Pyrophoric chemicals
• Pyrophoric chemicals are liquids and solids that will ignite spontaneously in air at about 50°C. Titanium dichloride and phosphorus are examples of pyrophoric solids; tributylaluminium and related compounds are examples of pyrophoric liquids.

Corrosive chemicals
• Corrosive chemicals are substances that cause visible destruction or permanent changes in human skin tissue at the site of contact, or are highly corrosive to steel. The major classes of corrosives include strong acids, bases, and dehydrating agents.
Irritants

- Irritants are materials that cause inflammation of the body surface with which they come in contact. The inflammation results from concentrations far below those needed to cause corrosion. Common irritants include substances such as:
  - ammonia
  - hydrogen chloride
  - halogens
  - ozone
  - alkaline dusts and mists
  - hydrogen fluoride
  - nitrogen dioxide
  - phosphorus chloride
- Irritants can also cause changes in the mechanics of respiration and lung function. These include:
  - acetic acid
  - formaldehyde
  - halogens
  - sulfuric acid
  - acrolein
  - formic acid
  - sulfur dioxide

Long term exposure to irritants can result in increased mucous secretions and chronic bronchitis.

Asphyxiants

- Simple asphyxiants deprive the tissue of oxygen. Simple asphyxiants are inert gases that displace oxygen. These include:
  - carbon dioxide
  - nitrogen
  - helium
  - nitrous oxide
- Chemical asphyxiants render the body incapable of maintaining an adequate oxygen supply. They are active at very low concentrations (few ppm). These include:
  - carbon monoxide
  - cyanides
  - hydrogen sulphide

Anaesthetics

- Anaesthetics have a depressant effect upon the central nervous system, particularly the brain. These include:
  - alcohols
  - halogenated hydrocarbons

Hepatoxic agents

- Hepatoxic agents cause damage to the liver. These include:
  - carbon tetrachloride
  - nitrosamines
  - tetrachloroethane
  - tetrachloroethane

Nephrotoxic agents

- Nephrotoxic agents damage the kidneys. These include:
  - halogenated hydrocarbons
  - uranium compounds

Neurotoxic agents

- Neurotoxic agents damage the nervous system. The nervous system is especially sensitive to organometallic compounds and certain sulfide compounds. These include:
  - carbon disulfide
  - methyl mercury
  - tetraethyl lead
  - trialkyl tin compounds
  - manganese
  - organic phosphorus insecticides
  - thallium
Damage to blood cells

- Some toxic agents act on the blood system. The blood cells can be directly affected or the bone marrow can be damaged. These include:
  
aniline
  benzene
  nitrites
  nitrobenzene
  toluidine.

Damage to lungs

- There are toxic agents that produce damage to the pulmonary tissue (lungs) but not by immediate irritant action. Damage can be caused by free silica and asbestos. Other dusts can cause a restrictive disease called pneumoconiosis.

Reproductive hazards

- Chemicals that affect the reproductive capabilities include mutagens (hereditary chromosomal damage) and teratogens (non-hereditary effects on the foetus). These include, but are not limited to (the SDS should be consulted for a chemical used to ascertain its hazards):
  
  Acrylamide Monomer *
  Dimethylformamide (DMF)
  Acrylonitrile *
  Dimethyl sulfoxide (DMSO)
  Aniline
  Ethylene Oxide
  Arsenic and its compounds
  Fluorocarbons (some)
  Benzene
  Formaldehyde
  Benzo(a)pyrene
  Lead compounds
  Beryllium
  Mercury and its compounds *
  Cadmium and its compounds
  Nitrobenzene
  Carbon disulfide
  Nitrous oxide
  Carbon Monoxide
  Phenol
  Carbon Tetrachloride *
  Polychlorinated biphenyls (PCBs)
  Chloroform
  Toluene *
  Chloroprene *
  Vinyl Chloride
  N,N-dimethylacetamide
  Xylene.

* Note that significant exposure through skin or membrane contact can occur.

Sensitisers

- A sensitisser causes a majority of the exposed population to develop an allergic reaction in normal tissue after repeated exposure to the chemical. The reaction may be as mild as a rash (contact dermatitis) or as serious as anaphylactic shock. A wide variety of chemicals may produce allergic responses, however some specific examples include:
  
diazomethane
  formaldehyde
  gelatin
  phthalic anhydride.
Appendix D  CHEMISTRY SAFETY COMMITTEE

Scope and Responsibilities:

The aim of the Chemistry Building Safety Committee (CBSC) is to ensure and improve the safe working conditions of all who work and study within the chemistry building. This involves both increasing the awareness of potentially dangerous or injurious circumstances and taking appropriate measures, where possible, to overcome these situations.

As part of these activities, the Chemistry Safety Committee is responsible for:

1. Ensuring that safety information is readily available. This information includes:
   - evacuation procedures
   - after hours numbers and procedures
   - emergency and evacuation procedures
   - routine safety procedures
   - the toxicity and hazards of chemicals
   - Safety Data Sheets
   - chemical storage procedures
   - waste disposal procedures
   - other relevant safety literature

2. Conducting regular safety audits of work places, followed by formal reports of the audits and the implementation of action plans for remedying unsafe conditions

3. Conducting an annual review of safety policy

4. Arranging an annual Safety Day Course for new research students and staff, and arranging other appropriate safety training as needed


6. Preparing new forms and policies on WHS

7. Advising and making recommendations to the heads, as the responsible officers, of the various administrative units, namely Chemistry, Pharmacy, and The Central Science Laboratory (CSL), within the Chemistry Building on Occupational Health and Safety issues

8. Overseeing of safety issues pertaining to the chemistry building

9. Maintenance of chemical inventories

10. Preparation and maintenance of risk assessment databases

11. Provide safety information and procedures for building contractors and short term workers

12. Maintenance of the Building WH&S Safety Board on level 2 – duty of the Secretary of the CBSC

13. Organise and present bimonthly safety morning teas – duty of the chair

Meetings:

The committee meets four (4) times a year, and if any person has any questions or comments, or feels that there are dangerous circumstances within the chemistry building, then they are encouraged to contact the chairman or one of the other committee members. Items for the agenda are canvassed from all committee members and other chemistry building staff prior to meetings. Further items can be added to the agenda at each meeting. If critical issues arise between meetings then the committee can address these matters, either as a special meeting or by electronic mail/telephone correspondence.

Dates for subsequent meetings will be set at each meeting. Notices of meetings and call for agenda items will be made at least 2 weeks prior to the next CBSC meeting. Meeting agendas will be forwarded to all committee members at least 1 week prior to the meeting. Minutes from each meeting

Hobart Chemistry Building Safety Committee
will be distributed to committee members by electronic mail, at most, 4 weeks after each meeting. The minutes from the CBSC meetings will also be forwarded to all building occupants, and placed in the ChemBuildingSafety area (located at: `\corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\ School of Physical Sciences/ChemBuildingSafety/CBSC Minutes/`) on the Chemistry fileserver for access by all building personnel.

A meeting, and any decisions made, will be deemed to be valid if:

- A quorum of more than 50% of the members are present, and
- There is a majority vote on any decisions reached.

Membership:

The membership of the committee contains representation from each of the administrative units within the chemistry building in Hobart, along with representatives from chemistry in Launceston. The Chemistry Building Safety Committee has the following complement of members:

- Building Manager, or deputy
- Chemistry – Hobart: 4 representatives, 1 academic staff, 1 professional staff, and 1 other Chemistry member, including the Cross-Campus Laboratory Manager and the Hobart Health Safety Representative (HSR)
- Chemistry – Launceston: 2 representatives, 1 academic staff and 1 professional staff member, including the Health Safety Representative (HSR)
- Pharmacy: 4 representatives - 1 academic staff and 1 professional staff member, including the laboratory manager and the Health Safety Representative (HSR)
- Central Science Laboratory (CSL) – 3 representatives, including the Health Safety Representative (HSR)
- Chemistry postgraduate student representative
- Pharmacy postgraduate student representative
- Designated first aider representative – if one is not already a member of the committee.

- Total Committee Membership = ~15.

These numbers comprise the maximum number of committee members, however each administrative area may nominate less than this number.

Elections:

The two executive members of the committee, namely the Committee Chair and Secretary, will be elected from the committee membership by the committee members. Nominations will be called for the two posts and secret ballot elections will be held if more than 1 applicant has nominated for these positions. If multiple nominations are received for the positions of Chair and/or Secretary, then the secret ballot conducted will consist of 4 votes with the following composition:

1. 1 vote from the Chemistry committee members
2. 1 vote for the Pharmacy committee members
3. 1 vote from the Central Science Laboratory (CSL) committee members
4. 1 casting vote from the Chemistry Building Manager – if required

The terms of office for the committee chair and secretary will be 2 years, with the option of re-standing at the end of each term.
The in-coming chair and secretary must be members of the committee for at least 12 months prior to being elected. These in-coming executive positions will be elected 12 months prior to the completion of the terms of the current chair and secretary.

The out-going committee chair will remain as a member of the CBSC for a minimum of 12 months after the completion of the term in order to provide guidance for the new chair.

Committee Membership:

The 2016 members of the Chemistry Building Safety Committee (CBSC) are:

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Dr Thomas Rodemann</td>
<td>7192</td>
</tr>
<tr>
<td></td>
<td>(CSL HSR)</td>
<td></td>
</tr>
<tr>
<td>Secretary</td>
<td>Mr Murray Frith</td>
<td>2147</td>
</tr>
<tr>
<td></td>
<td>(Cross Campus Chemistry Laboratory Manager, Building Manager)</td>
<td></td>
</tr>
<tr>
<td>Past Chair</td>
<td>Dr Peter Traill</td>
<td>2200</td>
</tr>
<tr>
<td></td>
<td>(Pharmacy Laboratory Manager and HSR)</td>
<td></td>
</tr>
<tr>
<td>Committee Members</td>
<td>A/Prof Michael Breadmore</td>
<td>2154</td>
</tr>
<tr>
<td></td>
<td>(Chemistry Academic Staff Representative, Hobart)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Jason Smith</td>
<td>2182</td>
</tr>
<tr>
<td></td>
<td>(Chemistry Academic Staff Representative, Hobart and Past Chair)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vacant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Chemistry Postgraduate Student Representative)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mr Brendon Schollum</td>
<td>2164/2153</td>
</tr>
<tr>
<td></td>
<td>(HSR-Chemistry, Hobart)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mr Yan Li</td>
<td>6669</td>
</tr>
<tr>
<td></td>
<td>(HSR-Chemistry, Hobart)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vacant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Chemistry Professional Staff Representative)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vacant</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Launceston Academic Staff Representative)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ms Catherine Tyson</td>
<td>3832</td>
</tr>
<tr>
<td></td>
<td>(Launceston Chemistry General Staff Representative and HSR-Chemistry, Launceston)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mr David Nichols</td>
<td>2150</td>
</tr>
<tr>
<td></td>
<td>(CSL Representative)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr James Horne</td>
<td>7821</td>
</tr>
<tr>
<td></td>
<td>(CSL Representative)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Nuri Guvin</td>
<td>1079</td>
</tr>
<tr>
<td></td>
<td>(Pharmacy Academic Staff Representative)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Daniel Hoyle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Pharmacy Postgraduate Student Representative)</td>
<td></td>
</tr>
</tbody>
</table>
# Appendix E

## HOBART CAMPUS CHEMISTRY BUILDING WARDENS

### Level 1

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone/Ext.</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Waller</td>
<td>2151</td>
<td>Technical services manager office; Pharmacy; bulk, solvent and chemical stores; sign on exit door from loading bay (check availability of sign monthly).</td>
</tr>
<tr>
<td></td>
<td>2149/7864</td>
<td></td>
</tr>
<tr>
<td>Paul Waller</td>
<td>2151</td>
<td>Mechanical workshop; plant room; toilet &amp; shower; sign across eastern end of lane next to Engineering; sign across eastern access door to building - check availability of signs monthly.</td>
</tr>
</tbody>
</table>

### Level 2

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone/Ext.</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murray Frith</td>
<td>2147</td>
<td>Faculty video conference room and Chemistry offices.</td>
</tr>
<tr>
<td>Nathan Kilah</td>
<td>2183</td>
<td>AJC lab; printer/ photocoppy room; staff room; female toilets; lecture theatre Chem210 (C1).</td>
</tr>
<tr>
<td>Trish McKay</td>
<td>2121</td>
<td>ACROSS Level 2 research labs; Rooms 214, 215, 216</td>
</tr>
<tr>
<td>Melissa Aubrey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noel Davies</td>
<td>2157/1813</td>
<td>CSL level 2; SEM &amp; X-Ray; ICPMS, M/S; sign for CSL exit; sign for eastern end of laneway next to library- check availability of sign monthly.; Library computer lab – Rm B103; library underground – Rms B102 &amp; B106. After reporting, return to underground to prevent entry and exit.</td>
</tr>
<tr>
<td>Karsten Goemann</td>
<td>2146</td>
<td>Pharmacy Level 2 from main Chemistry corridor to Library laneway (photocopy, student computer, seminar, PPL, tutorial room, staff offices, male toilets), signs on external doors, sign between Pharmacy and Library western end across both pathways; return to Main Pharmacy entry to prevent entry/exit and cf. for laneway.</td>
</tr>
<tr>
<td>Peter Traill</td>
<td>2200</td>
<td>Pharmacy level 2 from main Chemistry corridor to Engineering laneway side (PSL, East wing offices and labs)</td>
</tr>
<tr>
<td>Tony Whitty</td>
<td>2194</td>
<td></td>
</tr>
<tr>
<td>Petr Smejkal</td>
<td>2208</td>
<td></td>
</tr>
<tr>
<td>Peter Traill</td>
<td>2200</td>
<td>Pharmacy level 2 from main Chemistry corridor to Engineering laneway side (PSL, East wing offices and labs)</td>
</tr>
<tr>
<td>Melissa Aubrey</td>
<td>2193</td>
<td></td>
</tr>
</tbody>
</table>

### Level 3

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone/Ext.</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael Gardiner</td>
<td>2404</td>
<td>Paper group and MGG labs; MAH group, MGG &amp; KRS offices; C2, C3, C4 &amp; offices opposite; male staff toilet.</td>
</tr>
<tr>
<td>Stuart Thickett</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graham Meredith</td>
<td>2168</td>
<td>East wing; level 3 teaching &amp; instrument labs; Computer lab (Room 317), XRD room; NMR; male &amp; female toilets; student computing lab; collect first aid for area 2</td>
</tr>
<tr>
<td>Evan Peacock</td>
<td>2055</td>
<td>CSL level 3; NMR lab; Proteomics MS; CSL tea room; CSL Director and admin office &amp; Library computing lab.</td>
</tr>
<tr>
<td>James Horne</td>
<td>7821</td>
<td></td>
</tr>
<tr>
<td>Niall MacDonald</td>
<td>7670</td>
<td>Level 3 PARC offices &amp; labs; CSL offices (Townsend).</td>
</tr>
<tr>
<td>Mohammad Talebi</td>
<td>1074</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Phone</td>
<td>Details</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ivan Bindoff</td>
<td>7396</td>
<td>Pharmacy level 3, PPR 1 &amp; 2 (level 2), level 2 toilets, sign across walkway down Dobson Road; return to corner of building on Dobson to prevent pedestrian traffic past the building on the Dobson Road.</td>
</tr>
<tr>
<td>Jack Voutnis</td>
<td>2190</td>
<td></td>
</tr>
<tr>
<td><strong>Level 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andrew Grosse</td>
<td>2184</td>
<td>Level 4 teaching labs; store; collect first aid for area 1 Rear chemistry door sign to be collected for rear door.</td>
</tr>
<tr>
<td>Brendon Schollum</td>
<td>2164</td>
<td></td>
</tr>
<tr>
<td>Jason Smith</td>
<td>2182</td>
<td>Organic and ACROSS research labs &amp; offices, ACROSS Chip Lab, male &amp; female toilets.</td>
</tr>
<tr>
<td>Alex Bissember</td>
<td>2158</td>
<td></td>
</tr>
<tr>
<td>Brett Paull</td>
<td>6680</td>
<td>ACROSS research labs &amp; offices; academic offices; storage rooms, photocopy and duplicating rooms, female staff toilet; collect first aid for warden meeting point.</td>
</tr>
<tr>
<td>Thomas Rodemann</td>
<td>7192</td>
<td>CSL Level 4, IR/Raman; Stable Isotope &amp; CSL toilet.</td>
</tr>
<tr>
<td>Christian Dietz</td>
<td>7820</td>
<td></td>
</tr>
<tr>
<td>Rahul Patel</td>
<td>1079</td>
<td>Pharmacy level 4, Admin area level 2.</td>
</tr>
<tr>
<td>Jack Voutnis</td>
<td>2190</td>
<td></td>
</tr>
<tr>
<td><strong>Level 5</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pavel Nesterenko</td>
<td>2165</td>
<td>Roof area, Level 5 laboratories cool room, and freezer.</td>
</tr>
<tr>
<td><strong>Traffic Control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alex Bissember</td>
<td>2158</td>
<td>Traffic control on Dobson Road to halt cars during evacuation and then allow emergency vehicles access</td>
</tr>
</tbody>
</table>

**Notes:**
- Please consult the Wardens area on the Safety Area of the Chemistry Sever Holly-Hbt for details and area charts for floor wardens – the Safety Manual provides instructions on how to access this resource.
- The buildings have not been designed with special facilities for disabled persons. Staff/Wardens are required to advise the building manager of the presence of any such person, either a student or visitor. Please see the section on Evacuation of Disabled persons.
- As certain staff assigned duties may not be available at the time of an emergency, the Manager(s) must be informed of the daily staff loading and assign duties if the event arises. Therefore all staff, research associates and postgraduate students must be familiar with these procedures.
- Staff assigned to deploy laneways signs, must also monitor these access routes to ensure no unauthorised entry or exit occurs during emergency situations after reporting to the Building Manager.
- Staff assigned to monitor exits and entrances must return to these areas after reporting to the building Manager to ensure no unauthorised entry or exit occurs during emergency situations.
### Appendix F

**PERSONNEL TRAINED IN FIRST AID / OXY VIVA RESUSCITATION / USE OF SELF CONTAINED BREATHING APPARATUS**

---

**Personnel Trained In First Aid**

<table>
<thead>
<tr>
<th>Level</th>
<th>Name</th>
<th>Extension</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>Mr Paul Waller</td>
<td>x7864</td>
<td>Room 102</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td>Mr Murray Frith</td>
<td>x2147/3864</td>
<td>Room 202</td>
</tr>
<tr>
<td></td>
<td>Mr Tony Whitty</td>
<td>x2194</td>
<td>Room 2019</td>
</tr>
<tr>
<td></td>
<td>Ms Melissa Aubrey</td>
<td>x2193</td>
<td>Room 2028</td>
</tr>
<tr>
<td></td>
<td>Dr Peter Traill</td>
<td>x2200</td>
<td>Room 2003</td>
</tr>
<tr>
<td></td>
<td>Dr Karsten Goemann</td>
<td>x2146</td>
<td>Room 255</td>
</tr>
<tr>
<td></td>
<td>Mrs Sandy Holmes</td>
<td>x2198</td>
<td>Room 2004</td>
</tr>
<tr>
<td><strong>Level 3</strong></td>
<td>Mr Graham Meredith</td>
<td>2168</td>
<td>Room 420/309</td>
</tr>
<tr>
<td></td>
<td>Mr Brendon Schollum</td>
<td>x2153/2164</td>
<td>Room 420/310</td>
</tr>
<tr>
<td></td>
<td>Dr James Horne</td>
<td>x7821</td>
<td>Room 338</td>
</tr>
<tr>
<td><strong>Level 4</strong></td>
<td>Dr Andrew Grosse</td>
<td>x2184</td>
<td>Room 420</td>
</tr>
<tr>
<td></td>
<td>Prof Pavel Nesterenko</td>
<td>x2165</td>
<td>Room 407</td>
</tr>
<tr>
<td></td>
<td>Dr Thomas Rodemann</td>
<td>x7192</td>
<td>Room 447</td>
</tr>
<tr>
<td></td>
<td>Dr Rosanne Guijt</td>
<td>x2196</td>
<td>Room 4009</td>
</tr>
<tr>
<td></td>
<td>Ms Juanita Westbury</td>
<td>x1966</td>
<td>Room 4012</td>
</tr>
</tbody>
</table>

including adult mental health first aid

---

**Personnel Trained In Oxy Viva Resuscitation**

| Level 4 | Mr Murray Frith | x2147 | Room 202 |

---

**Personnel Trained In The Use of the Self-Contained Breathing Apparatus**

| Level 2 | Nil |

---

Hobart Chemistry Building Safety Committee
### Safety Hazard Notification and Control Report

**Part 1**

<table>
<thead>
<tr>
<th>Area of Work/Study</th>
<th>(Faculty/Section)</th>
<th>(Division/Section)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported by</td>
<td></td>
<td>(contact phone no.)</td>
</tr>
<tr>
<td>Specific hazard location</td>
<td>Hazard Report No:</td>
<td>(WHS Unit use only)</td>
</tr>
</tbody>
</table>

**Hazard Description:**

----------------------------------------------------------------------------------

**Risk Assessment:** (circle your estimate of the likelihood of this hazard resulting in an incident and the probable consequences should such an event occur and using the matrix the overall risk rating ie Extreme (E) High(H), Significant(S), Moderate(M) and Low(L))

----------------------------------------------------------------------------------

<table>
<thead>
<tr>
<th>LIKELIHOOD</th>
<th>CONSEQUENCE</th>
<th>Insignificant (1)</th>
<th>Minor (2)</th>
<th>Moderate (3)</th>
<th>Major (4)</th>
<th>Catastrophic (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible (3)</td>
<td>L (4)</td>
<td>M (8)</td>
<td>H (16)</td>
<td>E (18)</td>
<td>E (22)</td>
<td></td>
</tr>
<tr>
<td>Unlikely (2)</td>
<td>L (2)</td>
<td>L (5)</td>
<td>M (9)</td>
<td>H (15)</td>
<td>E (19)</td>
<td></td>
</tr>
<tr>
<td>Rare (1)</td>
<td>L (1)</td>
<td>L (3)</td>
<td>M (6)</td>
<td>M (10)</td>
<td>H (14)</td>
<td></td>
</tr>
</tbody>
</table>

**Suggested Controls:** (apply the hierarchy of control ie. elimination, substitution, isolation, engineering, administration, personal protection)

----------------------------------------------------------------------------------

**Immediate Actions Taken**

*Having completed Part 1 forward the original to the Health Safety Representative (HSR) for the area who will forward on to the area Organisational Unit head or Officer*

Hobart Chemistry Building Safety Committee
Hobart Chemistry Building Safety Committee

Safety Hazard Notification and Control Report

Part 2
Recommended Control(s):

Job Request Raised  yes □  no □  Job No(insert as appropriate)

Person Responsible

Controls to be completed by:

Approved by Organisational Unit head/Officer

Completion verified by Health Safety Representative

Hobart Chemistry Building Safety Committee
# Appendix H

## INCIDENT/ACCIDENT REPORT FORM


### NOTIFICATION OF INCIDENT / INJURY


The full Incident Procedure is located at [Incident-Response-Procedure](http://www.human-resources.utas.edu.au/health-and-safety).

**PART A - TO BE COMPLETED BY OR ON BEHALF OF AFFECTED/INJURED PERSON**

<table>
<thead>
<tr>
<th>Surname</th>
<th>Given Names</th>
<th>Contact No.</th>
</tr>
</thead>
</table>

**Name of injured/affected person (if same as above – leave blank)**

<table>
<thead>
<tr>
<th>Surname</th>
<th>Given Names</th>
<th>Contact No.</th>
</tr>
</thead>
</table>

**Section**

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Date of Accident/Incident:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day Month Year / /</td>
</tr>
<tr>
<td></td>
<td>Time: am/pm</td>
</tr>
</tbody>
</table>

**Witness (Full Name):**

**Position:** (tick)

- Employee
- Student
- Sponsored Student
- Visitor
- Contractor
- Member of Public

**Incident Type:** (tick one)

- Incident/No Injury Reported
- Biological Exposure
- Cuts/Burns
- Diving/Maritime Exposure
- Foreign Body/Eye
- Heating/Cooling
- Needle Stick Injury
- Near Miss
- Trauma/Bump
- Personal
- Chemical Exposure
- Sport Activity

**Incident Type:**

- Slips/Trips/Falls
- Biomechanical
- Electric Shock
- Ergonomic
- Manual Handling
- Overuse (keyboarding)
- Motor Vehicle Accident
- Overuse (OOS)
- Environmental Factors

**List Incident Details** - Please be specific (include any plant, equipment, substance, chemicals)

**Part of Body Affected** (if no injury reported please leave blank)

<table>
<thead>
<tr>
<th>Arm(s)</th>
<th>Eye(s)</th>
<th>Face</th>
<th>Foot/feet</th>
<th>Neck</th>
<th>General body</th>
<th>Hand(s)</th>
<th>Internal</th>
<th>Leg(s)</th>
<th>Multiple parts</th>
<th>Shoulder(s)</th>
<th>Wrist(s)</th>
<th>Back</th>
<th>Head</th>
</tr>
</thead>
</table>

**Type of Treatment:**

- Doctor/Medical
- First Aid
- Hospital Inpatient
- None required

**If Hospital Inpatient or Doctor/Medical ticketed – notify WHS immediately**

**Location of Incident:**

- e.g (campus, UTAS grounds)

**Location Specific Details:**

- e.g. (Rm 106 2nd floor Arts Bldg, Sandy Bay Campus)

**Was HSR Informed?**

- Yes
- No

**Name of HSR:**
**PART B** To be completed in conjunction with a Health Safety Representative or other (Supervisor, Manager)

<table>
<thead>
<tr>
<th>List any Action Taken:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>List Recommended Action/s and who is assigned to complete the Action/s:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**PART C: OFFICER SIGN OFF (Dean/Head of Division or Head of Section)**

<table>
<thead>
<tr>
<th>Name/Signature/Date:</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Employee only: As a result of this injury have you been incapacitated or partially incapacitated?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes ☐ No ☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accident/Incident Investigation Report Attached?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes ☐ No ☐</td>
</tr>
</tbody>
</table>
## ACCIDENT/INCIDENT INVESTIGATION REPORT

### Personal Details

<table>
<thead>
<tr>
<th>Names on contact details of person(s) involved:</th>
<th>□ Injured</th>
<th>□ Witness</th>
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<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
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<tr>
<td>4.</td>
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</table>

### Task and Location

- **Date/Time incident:**
- **What task was being performed when the incident occurred?**

### Plant or equipment

- **What plant was being used?**
- **Was the plant suitable for the task?**
- **Was the plant used according to a Safe Operating Procedure?**
- **Was the plant in good working order?**
- **Were the hazards and risks of the plant assessed in the local Hazard & Risk Register?**
- **Was the maintenance schedule of the plant described in the local Testing, Inspection & Monitoring Program?**
- **Was certification required to operate the plant?**
- **Was the operator of the plant certified?**

**Investigation team recommendations:**

**Referred to for action:**

**Date:**

### Materials (e.g. chemicals, pathogens, etc)

- **What materials were in use?**
- **Was a risk assessment available for the activity?**
- **Were Material Safety Data Sheets Available to the user?**

**Investigation team recommendations:**

**Referred to for action:**

**Date:**
Appendix J  WASTE DISPOSAL FORM

Ben Mooney
Manager - Technical & Environmental Services - Tasmania
T 0417 540 936

Tox Free Solutions Limited
ABN 90 133 522 157

CHEMICAL MANIFEST FORM

Company: ________________________________________________________________

Address: _______________________________________________________________

Contact: ___________________________ Email: ___________________________

Tel: ___________________________ Fax: ___________________________

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PACK SIZE</th>
<th>QTY</th>
<th>COMMENTS</th>
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</tbody>
</table>

PLEASE SEND YOUR COMPLETED MANIFEST FORM VIA EMAIL:

b.mooney@toxfree.com.au

Hobart Chemistry Building Safety Committee
Appendix K  HOBART CHEMISTRY BUILDING ESCAPE ROUTES

Evacuation of Level 1
Evacuation of Level 3
Evacuation of Level 4
Evacuation of Level 5
# Bomb Threat

## INITIAL

Don’t Hang Up
Note Time of Call
Keep the Caller

## BOMB THREAT CHECKLIST

**BOMB THREAT**

**2 QUESTIONS TO ASK**

WHICH building are you talking about?
WHEN is the bomb going to explode?
WHERE exactly is the bomb?
WHAT does the bomb look like?
WHAT kind of bomb is it?
WHAT will make the bomb explode?
ARE you the person who placed the
WHY have you done this?
WHO are you?
WHERE are you?
WHAT is your address and telephone

## WHAT TO LISTEN FOR

**VOICE**

**LANGUAGE**

NOISES Traffic/Voices/Machinery/Music/Noises on
OTHER Sex of Caller/Estimate

## EXACT WORDING OF THREAT


## POST-CALL

Person Receiving the Call:
- Complete this checklist
- Notify your Security
- Hand-completed checklist to Security

Security:
- Notify Police
- Notify any other Emergency Response Officers on site and confirm action

Time of Call: ___________________________ Name of Person Receiving Call: ___________________________
Duration of Call: ________________________ Telephone Number: ____________________________
Appendix M  WORKPLACE INSPECTION CHECKLIST

The forms to be used for a Workplace Inspection are available electronically in the form of a Microsoft Excel spreadsheet and Microsoft Word documents at \corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\ School of Physical Sciences\Chemistry \ChemBuildingSafety\Workplace Inspections - see Pages 32-34 for access details. There are 3 forms depending on the work area being inspected, namely Laboratories, Workshops and General Administrative areas. The documentation for the use of these forms is available on the Chemistry server at \corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\ School of Physical Sciences\Chemistry \ChemBuildingSafety\Workplace Inspections.

Appendix N  QUALITATIVE RISK ASSESSMENT TABLES

Examples of the Risk Assessment Qualitative Risk Tables are provided in the documentation for the completion of the risk assessments. These are available at: \corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\ School of Physical Sciences\Chemistry \ChemBuildingSafety\Risk Assessment Information\Risk Assessment Guidelines\ - see Pages 32-34 for access details.

Appendix O  TASK RISK ASSESSMENT

The form to be used for a Task Risk Assessment is available electronically in the form of a Microsoft Access database. This will enable the preparation and review of Task Risk assessment in a central database system. The documentation for the use of this form is available on the Chemistry server at \corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\ School of Physical Sciences\Chemistry \ChemBuildingSafety\Risk Assessment Information\Risk Assessment Guidelines, while the new database version is available at: Database computer – see details on Pages 32-. (Currently in the Lab Managers Office Rm 202)

Appendix P  SAFE WORK PROCEDURE

Relevant safe work practices / procedures need to be developed for each project, and accompany the Task Risk Assessment. Where possible, existing University of Tasmania Occupational Health and Safety procedures should be used in this undertaking. This Safe Work Practice form is available in the form of a Microsoft Access database in the same manner as the HSRA and TRA forms. This database system is available at: Database computer – see details on Pages 32-. (Currently in the Lab Managers Office Rm 202). The documentation for the use of this form and the new database version is available on the Chemistry server at \corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\ School of Physical Sciences\Chemistry \ChemBuildingSafety\Risk Assessment Information\Risk Assessment Guidelines\ - see Pages 32-34 for access details.
Appendix Q  DANGEROUS SUBSTANCES RISK ASSESSMENT

CHEMISTRY DANGEROUS SUBSTANCES PROCEDURES

The University of Tasmania’s Dangerous Substances policy and procedures require that RA’s are conducted for all processes, research, experiments etc. involving Dangerous Substances.

In order to implement these procedures effectively they are summarised in the key steps of:

**STEP 1:** Prepare an inventory of your work area dangerous substances. These inventories of all chemicals are maintained by each administrative unit, and for the Chemistry involves a Microsoft Access database (along with a Microsoft Excel version) sub-divided into each research/teaching area within Chemistry, while the CSL and the Pharmacy employ ChemWatch. It is important that the inventories are current and are updated as chemicals are purchased and consumed (if they are not to be replaced). Full details of the chemical must be included in the database, including storage location.

**STEP 2:** Obtain SDS’s for each of the substances and keep them readily available

**STEP 3:** Complete a Dangerous Substances Risk Assessment via the electronic database located at:
Database computer – see details on Pages 32-.
(Currently in the Lab Managers Office Rm 202)
Copies of previously completed risk assessments are available for reference at:\\corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\ School of Physical Sciences\Chemistry \ChemBuildingSafety\Risk Assessment Information\ Haz Substance RA Information\ or in the electronic database.

**STEP 4:** Review and sign the completed risk assessment with your supervisor and forward the printed authorised risk assessment, plus an electronic copy also via email, to the Dangerous Substances Coordinator (Laboratory Manager). The dangerous substances coordinator will then update the risk assessment register. A number will issued for the HSRA, and must be used when ordering any chemical listed on the assessment. The Laboratory Manager will file the completed assessment on the Chemistry server for future reference.

**STEP 5:** Implement all controls identified in the risk assessment and make the risk assessment available to all personnel undertaking the processes, research, experiments etc.

**STEP 6:** Maintain the work area dangerous substances inventory and Safety Data Sheets in the work place. Review the risk assessment whenever any changes are made which may change the risk assessment e.g. Updated SDS, incidents or accidents, changes to the process etc. or at least every five years.

Hobart Chemistry Building Safety Committee
The documentation for the use of this database is available on the Chemistry server at `\corpdata.its.utas.edu.au\groups\Science,Engineering and Technology\School of Physical Sciences\Chemistry\ChemBuildingSafety\Risk Assessment Information\Risk Assessment Guidelines`.

**Brief explanation of some of the terminology used in this document:**

**Acute:** Adverse health effects resulting from a brief exposure to a chemical (e.g. seconds, minutes, hours)

**Asphyxiant:** A vapour or gas that can cause unconsciousness or death by suffocation (lack of oxygen). Most simple asphyxiants are harmful to the body only when they become so concentrated that they reduce (displace) the available oxygen in the air (normally about 21%) to dangerous levels (18% or lower)

**Carcinogen:** A material that either causes cancer in humans, or, because it causes cancer in animals, is considered capable of causing cancer in humans

**CAS No:** An assigned number used to identify a chemical. CAS stands for Chemical Abstracts Service, an organisation that provides index guides by which information about particular substances may be located in the abstracts

**Chronic:** Adverse health effects resulting from long-term exposure to a chemical (e.g. months, years, decades)

**Cytotoxic:** Poisonous to living cells

**GHS:** Globally Harmonised System of Classification and Labelling of Chemicals.

**IDLH:** Immediately Dangerous to Life & Health. The maximum concentration from which one could escape within 30 minutes without any escape-impairing symptoms or irreversible health effects. Used to determine respirator selection. (Note: Carcinogenic effects were not considered in setting these values)

**Irritant:** A substance capable of causing a reversible or irreversible inflammatory effect on living tissue by chemical action at the site of contact as a function of concentration or duration of exposure

**Lachrymator:** A material that upon exposure to it causes tears

**Mutagen:** A material that induces genetic changes (mutations) in the DNA of chromosomes

**Odour Threshold:** The lowest concentration detectable by odour; note that published values vary greatly, as does and individuals ability to detect chemical odours; air monitoring is a much more reliable way to detect chemical hazards for many substances.

**PEAK:** This is the maximum concentration of a poisonous substance allowed in the workplace atmosphere at any time.

**Sensitiser:** A material that on first exposure causes little or no reaction in humans or test animals, but upon repeated exposure may cause a marked response not necessarily limited to the contact site. Skin sensitisation is the most common form. Respiratory sensitisation to a few chemicals also occurs.

**STEL:** Short Term Exposure Limit. A 15 minute TWA which should not be exceeded at any time, even if the 8 hour average is within the exposure standard.

**Teratogen:** An agent or material causing physical defects in a developing embryo or foetus

**TWA:** Time Weighted Average. Used to express the maximum airborne concentration of a material to which most workers can be exposed during a normal daily and weekly work schedule (8 hour workday and 40 hour week) without adverse effects.

**UN No:** Four digit numbers assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods. Assigned to individual substances or groups of...
substances with similar characteristics and are not always unique to individual chemicals, and may cover a group of chemicals with similar hazardous properties.

WSA: WorkSafe Australia. The operational arm of the National Occupational Health & Safety Council, the federal authority that develops advisory national standards in regard to occupational health and safety in Australia.
Appendix R  PLANT RISK ASSESSMENT

The form that is to be used for a Plant Risk Assessment, which must be used for the purchase of any plant within the Chemistry Building, is contained in the electronic risk assessment database located at: Database computer – see details on Pages 32-. (Currently in the Lab Managers Office Rm 202) It may be accompanied by a Task and Dangerous Substances Risk assessment if these are deemed necessary (for example, if a hazardous substance is involved with the plant). The documentation for the use of this form and the new database version is available on the Chemistry file server at \corpdata.its.utas.edu.au\groups\Science, Engineering and Technology\ School of Physical Sciences\Chemistry \ChemBuildingSafety\Risk Assessment Information\Risk Assessment Guidelines\.

Remember that this risk assessment only allows the plant to be ordered into the building. For the plant to actually be used in a laboratory/workshop or administration area, a Task Risk Assessment (and Dangerous Substances Risk Assessment if necessary) plus a Safe Work practices form must be completed and approved by the relevant authority.

Appendix S  ON-LINE INDUCTION AND TRAINING COURSES

As part of Chemistry's contribution and commitment to the teaching of Occupational Health and Safety a series of on-line Laboratory Safety Courses has been prepared. These courses are required to be completed to all undergraduate chemistry students, with a different course being required for each year of study. These MyLO based modules provide students with a good appreciation of how to assess and then minimise the risks associated with working with chemicals. It is a requirement for all new staff and students from other institutions to complete these courses prior to commencing work or study within the Chemistry. In order to satisfy the requirements for this part of the WHS induction, you must score at least 16 out of 20 on each of the quizzes.

These courses can be accessed via the Internet on the networked computers within the chemistry building, any other computer within the University that has Internet access, or from outside the University using any computer connected to the Internet via an Internet Service Provider. These courses will be conducted using MyLO, where your User Name is your POP e-mail name and your password is your POP e-mail account password.

The URL required to access these courses is: https://mylo.utas.edu.au/webct/entryPageIns.dowebct. After accessing the site you will asked to Log In using the above details. When successful, you will be presented with a list of available courses, from which you can select the course for the year level (either 1st, or 2nd year) you are enrolled in and the Laboratory Safety Course for the particular year will appear for you to complete. Please follow the course content and complete the quizzes at the appropriate times, and remember you must obtain a score of at least 16 out of 20 to pass this component of your experimental course work.

The University of Tasmania has also implemented an on-line refresher course for the Workers training which is located on the Universities MyLO server at: www.utas.edu.au/mylo/ . This course should be undertaken on an annual basis while the full course must be undertaken very three years.
Appendix T

ARMED HOLD UP PROCEDURE

ARMED HOLD-UP

Persons Involved

1. Don't be a hero - stay calm. Your safety and the safety of those around you is of paramount importance. If you’re not directly involved, stay out of it.

2. Don't argue - obey the bandit's instructions, but do only what you are told and no more. Do not volunteer any information.

3. Be deliberate in your actions if you are ordered to do something by the bandit. Avoid sudden movements.

4. Don't stare at the bandit - avoid direct eye contact.

5. If possible, make a mental note of everything you can about the bandit - in particular note speech, mannerisms, clothing, scars or any other distinguishing features such as tattoos.

6. Once the bandit has left, without putting yourself at risk and if nobody else has already done so, try and observe any vehicle used by the bandit. Take particular note of the registration number, type, colour and any distinguishing features.

7. After the bandit has left, render assistance to any person who has been injured and ring the Campus Emergency Number.

8. Record your observations in writing as quickly as you can after the Hold-Up. The Police need individual impressions of what happened, uninfluenced by others.

Note: If area is fitted with security alarm, only activate when safe to do so

*************************************************************************************************

Observations:-

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Hobart Chemistry Building Safety Committee
Inquiries
If staff or students seek information of a non-urgent nature they should go to the Student Services or WHS Sites on the University website. This will contain information on any infectious disease of immediate concern to the University. These sites do not contain routine information on a regular basis.

Information is also available from the Department of Health & Human Services website located at: http://www.dhhs.tas.gov.au

Reporting
If you wish to report an Infectious Disease, employees should ask their Doctor to contact the University, either the Unit/Section or the WHS Unit. Students should ask their Doctor to contact Student Services.
Mail Handling

Suspicious Mail & Packages

PERSON DISCOVERING
* Remain well clear of any area suspected of containing items.
* Alert persons in the immediate vicinity.
* Ring Campus Emergency Number
* Evacuate the affected area. Make sure that persons assemble in a well-ventilated area, where they are not exposed to further risk.

Mail Handling Procedures – Suspicious Mail & Packages

RECOGNITION POINTS

Origin
• Unusual postmark
• Unknown source

Labelling
• Poor Handwriting or Typing
• Misspelling of common words
• Restrictive markings

Physical Characteristics
• Unusual size, shape, weight, feel, sound or smell
• Excessive tape
• Excessive postage
• Discoloration, stains or powdery deposits
• Perforations or protruding objects

IMMEDIATE ACTIONS
• Carefully place on nearest level surface, including the floor
• Do not open, smell, touch or taste
• Isolate the area – move/keep people away from suspect article
• Inform applicable Supervisor/Manager
• Inform Security via ‘7600’ or ‘3336’ call – include following information:

Hobart Chemistry Building Safety Committee
- **Exact location in building**
  - Description of the suspicious article
  - Initial actions on discovery
  - Number of persons in affected area
  - Implement applicable Initial Response (see next page)

### INITIAL RESPONSE

#### SUSPECTED BOMB
- Do not handle unnecessarily or roughly
- Do not smoke in the immediate vicinity
- Do not subject to open flame, excessive heat or direct sunlight
- Do not immerse in water
- Evacuate immediate vicinity – move persons to area where they would not be exposed to potential blast/fragmentation danger
- Keep people away from potential danger area
- Meet and update police on arrival

#### SUSPECTED BIOLOGICAL OR CHEMICAL HAZARD

**If Article is UNOPENED:**
- Alert others-keep people away from the immediate vicinity of the article
- Place article in a plastic bag and seal the bag so it is airtight
- Place all items in second plastic bag and seal that bag so it is airtight
- Remain in your office or immediate work area
- Do not touch anyone
- Try to minimise physical contact with anything else – if you have to, then try and remember what you do touch
- Ensure that other persons in the same room/work area
- Keep your hands away from your face to avoid contaminating your eyes, nose and mouth
- If possible (without leaving your work area) wash your hands.
- If possible have the building ventilation system shut down and turn off any fans or equipment that is circulating air around the workplace
- Remain calm – you are not in immediate danger – wait for help to arrive

**If Article is OPENED:**
- Do not disturb the item any further
- Do not pass it around
- If any material has split from the item, do not try to clean it up or brush it from your clothing
- If possible place an object over the package without disturbing it (e.g. a large waste bin)
- Remain in your office or immediate work area
- Do not touch anyone
- Try to minimise physical contact with anything else – if you have to, then try and remember what you do touch
- Ensure that other persons in the same room/work area also remain there and adopt the same personal precautions
- Stop anyone else from entering the room/work area
- Close all doors and windows
- If there is a strong or noxious smell emanating from the article then move to an adjoining room closing all doors and windows and stay in that area until help arrives
- Keep your hands away from your face to avoid contaminating your eyes, nose and mouth
- If possible (without leaving your work area) wash your hands
- If possible have the building ventilation system shut down and turn off any fans or equipment that may distribute/move air around the workplace
- Remain calm – you are not in immediate danger – wait for help to arrive

**SUSPECTED RADIOLOGICAL HAZARD**

**If article is unopened**
- Alert others-keep people away from the immediate vicinity of the article
- Limit Exposure to the article
- Do not touch anyone
- Don’t handle article
- Try to minimise physical contact with anything else-if you have to, then try and remember what you do touch
- Evacuate area
- Stop anyone else from entering the room/work area
- Shield yourself from the object
- If possible (without leaving your work area) wash your hands
- If possible have the building ventilation system shut down and turn off fans or equipment that is circulating air around the workplace
- Remain calm-you are not in immediate danger-wait for help to arrive

**If article is opened**
- Do not disturb the item any further
- Do not pass it around
- If any material has split from the item, do not try to clean it up or brush if from your clothing
- Do not touch anyone
- Try to minimise physical contact with anything else – if you have to, then try and remember what you do touch
- Ensure that other persons in the same room/work area also remain there and adopt the same personal precautions
- Stop anyone else from entering the room/work area
- If possible (without leaving your work area) wash your hands
- If possible have the building ventilation system shut down and turn off fans or equipment that is circulating air around the workplace
- Remain calm – you are not in immediate danger – wait for help to arrive
Person Encountering Violent or Threatening Person

- Immediately notify Campus Emergency Number
- Do not argue with the person
- Move away from the person and alert others to move away also
- Do not surround the person
- Make it easy for the person to leave the building/area
- Avoid sudden moves
- Do not attempt to physically subdue the person
- Make a mental note of the **person's description**
- Remember that assuring your physical safety is the primary goal - if possible ensure that a counter or desk is between yourself and the person.

Person's description:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
Appendix X  Power Outage Protocol

POWER FAILURE

General Guidelines

- In the event of a power failure, emergency lighting in all buildings will provide limited illumination.
- Power-dependant phone systems will be inoperative during the power failure.
- Call the Campus Emergency Number to notify security.
- If normal activities are severely affected by reduced illumination, switch off all appliances which have been in use, calmly leave the building and assemble as for a night evacuation.
- If normal activities can be conducted, staff should nonetheless check their workplaces for any evidence of fire.
- Where practicable, the Campus Emergency Co-ordinator should attempt to ascertain the likely duration of the interruption to power and advise affected persons.
- The Campus Emergency Coordinator should also consider any consequential hazards as a result of a power interruption.

Note: Areas with fume cupboards or large extraction systems will need to consider evacuation.

Consequential Hazards:

1
2
3
4
5
6
Appendix Y   CSL Safety Webserver procedures

CSL SAFETY WEBSERVER INFORMATION

CSL has a web based safety information server, located at: safety.csl.utas.edu.au
The site contains
- General safety information documents including blank risk assessment forms, work place inspections
- Links to online safety information, including University Hazard forms, University Incident forms and ChemWatch
- Safe work procedures for some CSL equipment

The site also contains information which can only be accessed by CSL staff including
- Individual risk assessments (task, plant and hazardous substance)
- Work place inspections

CSL staff can also update information on the web site. This can be done by
- Select “Maintain site”
- Enter your university computer access code (without the UTAS\) and your university password.
Appendix Z  CHEMISTRY BUILDING WHS INDUCTION DECLARATION

Declaration

I, ________________________________________________________________,

Staff/Student Number: ____________________________, have read this Safety Manual,
completed the Safety Training Courses if required, and received the WHS Induction.

I understand and undertake to observe all safety procedures outlined in this manual. I
also understand the hazards associated with working this building, and my
responsibilities in this regard.

________________________________________
Signature

________________________________________
Date

Please sign this page, detach it from the manual, and hand it in
to Reception or the Laboratory Manager of the relevant Unit within 4
weeks of commencing work or receiving this manual.

Hobart Chemistry Building Safety Committee