Health and Safety - Chemical Management Procedure

Section 1 - Summary

(1) Detail a robust Victoria University (VU) chemical management system so that the risk of incidents, illnesses or injuries associated with the use, storage and transport of chemicals is eliminated or effectively controlled.

(2) To provide instruction on the necessary chemical hazard and chemical risk control measures.

(3) To inform VU staff and students of legislative and regulatory requirements for the safe storage, handling, use and disposal of chemicals used and stored at VU.

Section 2 - HESF/ASQA/ESOS Alignment

(4) HESF: 2.3 Wellbeing and Safety

Section 3 - Scope

(5) This procedure applies to all VU premises and all staff, contractors and students who undertake activities involving chemicals.

(6) This procedure does not cover “Radioactive” or “Asbestos Containing” materials which are managed under separate procedures.

Section 4 - Definitions

(7) Carcinogen - Chemical which may cause cancer. Incidence of cancer is usually dose related.

a. Category 1 - Known or presumed human carcinogens.
b. Category 1A - Known to have carcinogenic potential for humans.
c. Category 1B - Presumed to have carcinogenic potential for humans.
d. Category 2 - Suspected human carcinogens.

(8) Chemicals - Includes all compressed gases, cryogenic liquids, dangerous goods, combustible liquids, hazardous substances, hazardous chemicals, paints, glues, solvents, fluxes, scheduled poisons, fuels, glues, laboratory chemicals, epoxy resins, thinners, cement powder and swimming pool and cooling tower water treatment chemicals.

(9) Chemical Register - The chemical register lists all chemicals, their classification/category, hazardous status, storage location/s and maximum expected quantities stored. The register also provides links to the current chemical SDSs. Each location chemical register must list all the chemicals currently in use and/or storage in the correct folder locations. The VU chemical database (Chemwatch) is the inventory tool for the management of chemicals used and stored on all University premises.Chemwatch can be accessed through the intranet under the Useful Links of the OHS

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and Wellbeing information section.

(10) CWC Chemicals - Chemical Weapons Convention Chemicals - Australian Government - Australian Safeguards and Non-Proliferation Office.

(11) Cytotoxic Drugs - Therapeutic agents intended for, but not limited to the treatment of cancer. These drugs are known to be highly toxic to cells. Many are carcinogens, mutagens or teratogens.

(12) Dangerous Goods - Substances or articles that pose an immediate risk to people, property or the environment (e.g. flammable, toxic, corrosive). Defined under the Australian Dangerous Goods Transport Regulations.

(13) Hazardous Chemicals - Under the Federal Model Work Health and Safety (WHS) Regulations, a hazardous chemical is any substance, mixture or article that satisfies the criteria of one or more Globally Harmonised System of Classification and Labelling of Chemicals (GHS) hazard classes, including a classification in Schedule 6 of the WHS Regulations.

(14) Hazardous substances - Pure chemicals or chemical mixtures that are hazardous to your health, both short term and long term chronic exposure. Generally classified under previous legislation and recorded in the Safe Work Australia Hazardous Substance Information System data base.

Please note Asbestos is treated under the HSW - Asbestos Management Procedure.

(15) High Consequence Dangerous Goods - High consequence dangerous goods are those that have the potential for miss-use in a terrorist incident and which may, as a result, produce serious consequences such as mass casualties or mass destruction.

(16) Occupational Exposure Limits - Average material concentration levels below which personnel should not experience any adverse health effects during a working lifetime. Refer to Safe Work Australia - Hazardous Chemicals Information System database.

(17) PPE - Personal Protective Equipment. Refers to anything used or worn to minimise risk to workers' health and safety. Examples include safety glasses, gloves, respiratory protection, and safety boots.

(18) Scheduled Carcinogenic Substances - Schedule 10 carcinogenic substance or Schedule 11 carcinogenic substance as defined in the National Model Regulations for the Control of Workplace Hazardous Substances, Part 2 - Scheduled Carcinogenic Substances [NOHSC:1011(1995)] and Victoria OHS Regulations 2017. Also listed in Safe Work Australia Code of Practice - managing Risks of Hazardous Chemicals in the Workplace Appendix C.

(19) Scheduled Poisons - Substances listed on the Commonwealth Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) are chemicals and pharmaceuticals that have special controls applied to how they are packaged, labelled, dispensed and used to ensure the safety of the community.

(20) Safety Data Sheet (SDS) - A document of prescribed format providing physical, chemical, toxicological and safe handling instructions for any given chemical. As far as is practicable all safety data sheets must be of Australian Format, (16 Sections) with Australian contact details and reviewed within the last 5 years.

Section 5 - Policy/Regulation

(21) Health and Safety Policy

Section 6 - Procedures

Part A - Summary of Roles and Responsibilities

Roles	Responsibilities
Everyone working at VU	Prevent injury to themselves and others by following safety procedures in relation to purchase, storage, use and disposal of any chemicals. Complete induction into specific locations and training for specific tasks so accidental exposure to chemicals is eliminated or minimized. Identify hazards in relation to chemicals within their own work and environment, participate in risk assessments of tasks which involve hazardous chemicals, and implement controls to minimize potential exposures, theft or misuse. Wear PPE as required. Use the VU Chemical Database (Chemwatch) to access the list of chemicals and their SDSs in use at the University. Chemwatch can be accessed through the intranet under the Useful Links of the OHS and Wellbeing information section. Correctly Label and date all decanted chemicals and made up solutions. Read the SDS and follow instructions on chemical use, storage and response to chemical incidents, near misses and chemical spills or uncontrolled escape of gas or fumes. Respond immediately to chemical spills using spill kits supplied if safe to do so. Report and record, using the VU OHS Hazard/Incident Reporting System, any near miss, or hazard with potential to, or incident which has caused injury, illness or damage to the work environment. This includes all chemical spills.
Executives and Leaders	Ensure responsible and compliant chemical management, hazardous chemical risk assessment and control implementation including workplace inspections, consultation, system review and audit. Set objectives and goals for improvement in safe chemical management at VU. Monitor compliance with this Procedure and ensure risk mitigation systems are reviewed and allocated reasonable resources for implementation and ongoing maintenance. This includes allowances for waste disposal and regular maintenance and calibration of control equipment such as fume cabinets, storage cabinets, compressed gas regulators and hoses and gas monitors. Ensure all reports have sufficient training and resources to complete their work safely.
Managers and Supervisors	Control the purchase of all hazardous chemicals by: - Ensuring poisons permit and scheduled carcinogens license parameters are met. - Via approval processes ensuring purchase requests meet the procurement requirements listed in this Procedure to ensure compliant chemical storage quantities are not exceeded. Ensure all chemicals used and stored in each area are entered into the VU Chemical Database (Chemwatch), are listed in the current storage register locations, and have appropriate SDS available. Chemwatch can be accessed through the intranet under the Useful Links of the OHS and Wellbeing information section. Ensure the safe storage and disposal of all hazardous chemicals is planned and implemented. Ensure risk assessments are completed and observed for all activities which involve hazardous chemicals. Ensure all disposal of chemicals is completed using the VU Chemical Waste Disposal Guidance and the VU approved waste disposal provider. Report on compliance with this Procedure to the relevant OHS Committee on a regular basis. Direct the immediate response to chemical spills using spill kits supplied, if required, minimise the exposure of any person present when chemicals are uncontrolled. Promote regular consultation and discussion regarding safe chemical management. Arrange for personal exposure or workplace monitoring where occupational exposure limits may be uncertain or exceeded. Investigate, review and respond to reports and audit findings using the VU OHS Hazard/Incident Reporting System provided, for any hazard with potential to, or incident which has, caused injury, illness or damage to the work environment. Pass on any findings following exposure monitoring or audit reports to all staff, students and/or contractors in their team.

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Roles	Responsibilities
Teachers, Academic Staff and Researchers, Demonstrators and Technical staff	Consider the hierarchy of controls, elimination, substitution, isolation, engineering, administrative, personal protective equipment when devising experiments and teaching experiences with the overall aim of reducing risk of injury or potential exposures. Ensure SDS and task risk assessments which include chemical hazards are readily available to all personnel using or working with chemicals. Ensure required PPE, closed shoes, safety glasses, and/or any other requirements are used every time they are required in documented risk assessments and safe work methods and job safety analyses. Provide induction, instruction, training and supervision to eliminate and/or minimise risk within tasks for themselves, staff and students. Provide required level of induction and instruction for contractors and visitors. Complete risk assessments in conjunction with anyone involved in the activity or brief the group on the exact details of the risk assessment if re-using an existing risk assessment. Ensure demonstrations are delivered in compliance with risk assessments and safe operating procedures for the activity; this includes wearing correct work garments and PPE during demonstrations. Use pre purchase checklist prior to any purchase and/or before introducing any new task or equipment or chemical to University activities. Notify verbally to their direct manager or VU contact person and in writing, using the VU OHS Hazard/Incident Reporting System, of any near miss or hazard with potential to, or incident which has, caused injury, illness or damage to the work environment this includes all chemical spills. Ensure all area chemical registers in the VU Chemical Database (Chemwatch) are current. Chemwatch can be accessed through the intranet under the Useful Links of the OHS and Wellbeing information section.
Research Students	Document procedures and risk assessments for activity's which involve chemicals. Submit these for review by the area Technical Manager and OHS Team. Complete the relevant laboratory, workshop or work area Safety Induction. Follow safety instructions from technical support personnel, supervisor, demonstrator or lecturer. Complete additional chemical management training as required.
Undergraduate Students	Complete the relevant laboratory, workshop or work area Safety Induction. Follow safety instructions from supervisor, demonstrator or lecturer. Provide own PPE as required. E.g. covered or safety footwear.
OHS Team	Provide advice to eliminate and/or minimise hazards in relation to chemical purchasing, safe storage, transport and disposal as requested. In consultation with key stakeholders provide information, instruction and training on chemicals management including development of risk assessments and conduct of self-audits. Provide personal exposure or biological monitoring where chemical exposure levels are uncertain or may exceed occupational exposure limits including documented feedback to participants and relevant supervisors and managers. Provide and administer the VU Chemical Database as the official chemical register for the University. This includes provision of training. Schedule and conduct audits of risk assessments, chemical storage audits and monitor reports on compliance with this Procedure. Provide timely feedback to areas, managers, and supervisors regarding audit findings and/or identified risks. Ensure Dangerous Goods requirements for campus signage, placarding and manifests are correct and current. Ensure all campus sites and storages are signed in accordance with the Dangerous Goods handling and storage regulations and notification is provided to Worksafe for each site as required. Enter audit and hazard findings into the VU OHS Hazard/Incident Reporting System. Monitor and report results when new controls have been introduced.

Part B - Procedure

Chemical Procurement

(22) The procurement of chemicals must be controlled by the relevant local manager.

(23) Approval to purchase a chemical will only be provided if:

a. The relevant SDS has been reviewed.
b. It is determined that no safer alternative chemical is available.
c. The relevant permits and licenses are in order - refer below.
d. Time sensitivity of the chemical has been considered when determining the concentration and quantity being ordered. The volume should be the minimum amount required for the expected short-term demand for the chemical's use within the next 12 months.
e. Suitable storage facilities are available for the class of chemical and the quantity ordered.
f. Solid or liquid container or package quantity is a maximum of 20 litres/kilograms or less for workshops or 5 litres/kilograms or less for laboratories. Exemptions apply for bulk gas and liquid deliveries to approved storages.
g. Appropriate facilities and competent staff are available to safely undertake (or supervise) the work involving the chemical. These include the use of fume cupboards, local ventilation and where necessary, fume cupboards with wash down facilities.
h. Any personal protective equipment required to safely use the chemical (based on the SDS) is provided.

Chemical Quantities

(24) Chemicals must be purchased in the smallest quantities necessary as the cost of chemical storage, management and waste disposal is often greater that the cost saving achieved by bulk purchasing. Ordering needs to consider the capacity of the stores so they do not exceed the minor quantities (as per the relevant Australian Standard) for each category or class of chemical.

Compliant Chemical Storage

(25) All chemicals must be stored in designated chemical stores, laboratories, studios or workshops. No chemicals shall be stored in personal lockers, desks or offices.

(26) Chemicals should be stored as indicated on the relevant safety data sheet taking into account the quantity being stored.

(27) Separation of material classifications or classes for Dangerous Goods is mandatory - Refer to the Dangerous Goods Classes Segregation Chart.

(28) Major storages where quantities exceed limits for minor storage as determined in the relevant Australian Standard or the Dangerous Goods Regulations for the dangerous goods class require placarding and signage. Depending on the quantity stored, these chemicals may be included on the site manifest and notification to Worksafe may be required. This must be carried out with the OHS team.

(29) Chemical Storage inside a working teaching or research laboratory should comply with the Maximum Chemical Storage in a Laboratory Guidance.

(30) Chemical Storages must be equipped and maintained in accordance with the relevant legislative National and State requirements and Australian Standards. Refer to HSW Guidance Note Legislative Compliance.

(31) Scheduled drugs and poisons must be stored and managed according to the relevant poisons control plan and legislation and secured inside compliant locked cabinets in locked and secure rooms. Refer to the Purchase and Storage of Scheduled Poisons and VU HSW Safe Operating Procedure - Poisons Management.

(32) All chemical storage cabinets must have spill collection trays (which are not used for storage), appropriate signage and open or closed ventilation as is recommended for their contents.

(33) All flammable liquid storage cabinets shall have self-closing and self-latching doors.

(34) To minimise corrosion it is recommended that all corrosive cabinets are plastic.

(35) A register of use of scheduled carcinogens must be maintained and contain:

a. A list of the products names of the scheduled carcinogenic substance.
b. A copy of the SDs for each carcinogenic substances.
c. A running inventory of the amounts used and by whom.
d. Records of medical surveillance for personnel in contact with scheduled carcinogens.

(36) Chemical stores must be inspected at least weekly in order to identify any spills, broken containers or chemical stored in inappropriate locations.

(37) Reconciliation audits of quantities of S8 and S9 chemicals must be completed at least quarterly with discrepancies, losses or thefts reported via the procedure in the guidelines.

(38) Where poisons are stored and used the Poison Control Plan must be reviewed at least annually with retention of records of each review. Stands should be provided for poison safes which must be secured to the floor (rather than a wall) to minimise ergonomic risks.

(39) All major chemical stores and minor mixed storages must be audited at least annually by the person who is responsible for approving purchases to the storage location or their delegated representative or a member of the OHS team. Audits must ensure that chemical registers reflect actual storages. Chemical storage audit findings must be entered into the VU OHS Hazard/Incident Reporting System.

(40) Any hazardous substance or dangerous goods contained in a pipe, piping system, process vessel, reactor vessel or any plant must be identified by signs and labels to staff and contracted personnel who might be exposed to the substance.

(41) Where dangerous goods or combustible liquids are stored, the tanks and associated pipework must be regularly maintained and the integrity of the tank inspected at least every 10 years or shorter depending on the tank type and relevant Australian Standard. Documented records of system inspections, maintenance and integrity testing must be retained.

(42) Facilities where chemicals are used and stored must exhibit compliance with:

a. The requirements for the safe storage of dangerous goods in workshops and general chemical storages (e.g. pool treatment chemicals, diesel, cleaners' stores and water treatment) are detailed in the Dangerous Goods (Storage and Handling) Regulations 2012 and the relevant Australian Standards for the particular type/s of materials being stored.
b. The chemical storage requirements for laboratories and studios are detailed in the Australian standards for laboratory design and construction AS/NZS 2982 and Safety in the laboratory series AS/NZS 2243.
c. The above requirements must be incorporated into the planning and design of new storages for hazardous chemicals and when facilities are relocated and/or buildings are repurposed or upgraded. See AS/NZS 2982.1 Laboratories and AS/NZS 2243 series.
d. The OHS Team can be contacted for advice and assistance.

Amenities

(43) Facilities for the storage, preparation and consumption of food and drinks must be provided outside of workshops, classrooms, chemical storage areas and laboratories.

(44) Hand washing facilities with hot and cold water must be provided.

(45) Areas separate from storage and use of chemicals for writing up and office work must also be provided.

VU Chemical Database (Chemwatch)/Chemical Register

(46) VU Chemical Database (Chemwatch) is the chemical register (see Definitions) for all VU chemical storages. Chemwatch can be accessed through the intranet under the Useful Links of the OHS and Wellbeing information section. Maximum quantities are used to determine dangerous goods storage, site placarding and the manifest requirements. It is essential that these quantities are current and correct.

(47) Chemical Register requirements:

a. List of all chemicals, storage location/s and maximum expected quantities stored. General register folder format is Campus/Building ID/Building ID Level Number/Building ID Level Number Room ID optional name. Note: The size of the container, not the quantity in the container shall be the recorded as the quantity.
b. All empty containers, if present in the store, must be included in the inventory unless they have been totally cleaned of contents by double washing or similar method.
c. Units of kilograms or liters are preferred.
d. Gas quantities must be listed as the water capacity of the gas cylinder.
e. All staff must have ready access to the chemical register for their location.
f. Any staff member responsible for purchasing, using and disposing of chemicals must ensure all chemicals are inspected regularly and that the register is maintained i.e. new chemicals entered or those no longer in use removed from the VU Chemical Database (Chemwatch).

(48) Staff working on premises which are not controlled by VU are required to:

a. Supply the controller of the premises with the appropriate chemical register information.
b. Regularly inspect the chemicals under their control and ensure that the details on the location based chemicals database are current.

Labelling of Chemical Containers

(49) All chemicals and chemical solutions must be labelled to identify their contents and provide basic health and safety information.

(50) Chemicals decanted from a manufacturers' container to another container and prepared solutions must have the following on the label:

a. WARNING or DANGER as signal word.
b. GHS Pictogram (preferred) or Dangerous Goods Class Diamond.
c. Ingredients - provide the full name not just the chemical formula.
d. Concentration,% or molarity.
e. Hazard Statements – Usually 1 to 2 most important, more if there is space on the label. Maximum 6 to fit legibly.
f. Precautionary statements – If space, 1 or 2 most critical, no more than 10 to fit legibly.
g. Name of the person who decanted the substance or prepared the solution.
h. The date chemical was decanted or prepared.
i. Prepared solutions should also include the solution's expiry date.
j. Contact details of the person who prepared the solution.

(51) Information for the chemical can be obtained from the manufacturer's original label and the safety data sheet

(SDS).

(52) If the SDS for the chemical or chemical solution is listed in the VU Chemical Database (Chemwatch), the database can be used to print a compliant label.

(53) Reused containers must have one correct and clear label.

(54) Cleaned containers must have all labels removed, marked over or covered whatever is most practicable.

(55) No reused food or beverage containers (e.g. drink bottles) are permitted to be used as chemical containers. The single exemption is for the chemical testing of foods and beverages where the food containers shall be clearly marked as for chemical testing ONLY.

(56) Non-hazardous and non-dangerous goods containers must legibly display the contents name. This includes water containers.

Safety Data Sheets (SDS)

(57) SDSs must be readily available to all staff and students who may be exposed to that chemical. It is acceptable to keep printed mini SDSs or to store the SDSs electronically, provided they are readily accessible.

(58) The VU Chemical Database (Chemwatch) provides access to supplier SDSs which can be viewed and printed in a standard format.

(59) SDS must be:

a. Obtained from the manufacturer, supplier or importer of the chemical.
b. Formatted according to the Australian 16 section format.
c. Have been issued/reviewed within the last 5 years.
d. Include Australian emergency contact details.

Access to Chemicals

(60) Only staff and students who have a legitimate need and who have undertaken an induction (i.e. cleaners) should have access to chemicals. Unauthorised access and activities must be prevented. Basic security controls for chemicals include:

a. Ensuring that the perimeters to all areas where chemicals are used or stored are secured (e.g. by key or fob access) when they are unattended by staff.
b. Entrance doors to laboratories, workshops and studios must be closed at all times, even when they are in use.
c. Display VU's standard "Authorised Entry Only" or specific laboratory signage at the entrances of facilities where chemicals are stored or used.

(61) The presence of unknown persons in laboratories or chemical store rooms should be investigated so as to establish the reasons for these persons presence.

(62) Regular checks and maintenance of a current inventory of all chemicals, biological agents and equipment. Any discrepancies must be reported.

(63) Access to scheduled poisons, controlled drugs and precursor chemicals must be restricted in accordance with licensing and regulatory requirements. Records of use, quantities booked out and quantities remaining in store must be maintained at each storage location.

Disposal of Chemicals

(64) Chemicals must be disposed of via VU's hazardous waste disposal arrangements.

(65) This Procedure refers to any waste that is generated from any research, industrial, commercial, hospital, laboratory or trade activity and that has the potential to be harmful to humans and/or the environment.

(66) Chemical waste must be categorized with reference to the SDS and disposed of in accordance with the VU Chemical Waste Disposal Guidance Notes.

(67) All chemicals for disposal must be -

a. stored in containers suitable for their category;
b. labelled clearly; and
c. stored in appropriate locations.

(68) A VU approved and appropriately licensed provider must be engaged for disposal of hazardous and non-hazardous waste.

Training

(69) All staff and students who work with chemicals must be provided with sufficient training and supervision so they can work competently and safely. Training must be provided at appropriate periods and cover the following:

a. General instructions on how to:
    i. Identify hazardous chemicals
    ii. Determine the risks of hazardous chemicals
    iii. Locate, read and understand SDS
    iv. locate, document and review risk assessment
    v. Identify and apply the correct hierarchy of control
    vi. Decant, transport and label chemicals
    vii. Address chemical spills and local emergency procedures

(70) Use and location of personal protective equipment and emergency equipment.

(71) Local chemical procedures, processes and equipment.

(72) Chemical waste storage, handling, labelling and disposal procedures.

(73) Specific information about the chemicals being used i.e. review of the relevant SDS and risk assessment. For example cryogenic gas handling training for personnel working with cryogenic liquids.

(74) Specific on the job training for the tasks to be performed including the demonstration of the work to be performed and direct (face to face) supervision until they are deemed competent in the process.

(75) The student or staff member being trained must demonstrate competence in safely undertaking the task(s) involving chemicals before being deemed competent. The attainment of competence must be documented and the records maintained indefinitely. Ongoing general supervision must also be provided.

(76) Specific online Chemical Training courses for all staff, postgraduate and honours students are listed below under Clause 119. These courses are accessible in VU Develop.

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(77) Further information can be sourced from the Chemical Management Intranet Webpage and the OHS team.

Risk Assessments

(78) Risk assessments must be completed for tasks involving hazardous chemicals. Risk controls measures must be identified and followed. Where necessary relevant safe operating procedures need to be established and documented.

(79) The risk assessment process for tasks involving hazardous substances and dangerous goods will include the following steps:

a. Review of the SDSs of the substances involved and identify the nature and severity of potential health effects and/or the potential for dangerous reactions, fire, explosion etc.
b. Assess the physicochemical properties and stability of the chemical precursors, intermediate chemicals and reaction products. Assess the potential effects on the work environment, sources if ignition, personnel and external environment.
c. Consider the proposed work process including the work environment (e.g. space, ventilation, application of heat or pressure), quantities of the substances to be used, the practical experience of the person undertaking the work and the number of people that will be affected by the work.
d. Identify the possible routes of exposure such as inhalation (breathing), absorption (skin contact), ingestion (swallowing), injection (skin punctures).
e. Identify the duration of the exposure, whom could be exposed and number of people who could be exposed.
f. Identify the likelihood of exposure as well as, the likelihood of a spill, dangerous reaction (i.e. fire, explosion, pressure release or asphyxiation) occurring during the work process and the associated risk factors.
g. Assess the types and quantities of wastes that will be generated, their storage, handling, treatment and disposal methods. Review potential emergency situations e.g. spill and/or fire and ensure that procedures are in place.
h. Identify and stipulate the risk control measures to be implemented and include these in the documented procedure. Where necessary implement additional risk controls to reduce the risk of exposure or uncontrolled reaction. See the following sections Safety Equipment – Engineering Controls and Personal Protective Equipment (PPE).

(80) The risk assessment must be reviewed following a near miss, spill or incident and when there are changes to the chemicals, procedure, location and or equipment used. Records of review and changes shall be recorded on the risk assessment.

Safety Equipment - Engineering Controls

(81) Emergency drench showers and eye wash stations must be available in all laboratories and adjacent to some major chemical storage depending on the quantities and types of materials being stored. Further advice can be sought from the OHS team.

(82) Fume control equipment must be used when work is undertaken with volatile chemicals, solvents, fume generating activities, some powders or reactions in open processes, unless the risk assessment indicates that fume extraction is not necessary.

(83) Fume cabinets or local exhaust ventilation shall be flow checked regularly; fans and ancillary equipment must be maintained at least annually. Maintenance records must be retained.

(84) Fume extraction filters for ventilation systems must be inspected and replaced on a regular basis or at least annually according to the frequency of use and concentrations present.

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(85) Gas monitors (portable and built in) and gas detection devices must be calibrated by a NATA accredited supplier at least 6 monthly unless an area risk assessment determines otherwise. At least annual calibration is mandatory. Some locations and gases may specify that more frequent gas monitor calibration is required. Monthly calibration checks are recommended for portable gas monitors.

(86) The filter cartridges for negative pressure respirators in use must be changed at least every 6 months or more frequently depending on exposures.

(87) Risk assessments must be undertaken in order to determine if any additional controls e.g. respiratory protection, face shields, glove boxes, mobile extraction units, specialist spill kits etc. are required.

Personal Protective Equipment (PPE)

(88) The type of PPE and clothing required when working with chemicals varies depending on the chemicals being handled, the tasks being undertaken and the facilities being used. The SDS must be reviewed when deciding the appropriate PPE. It must be documented in the risk assessment.

(89) The minimum PPE and clothing required when working with chemicals is as follows:

a. Enclosed/covered shoes made of non-absorbent material with a non-slip sole. These are mandatory for all laboratory work.
b. Safety glasses or goggles. These are recommended for work with chemicals and mandatory when pouring or mixing chemicals.
c. Disposable gloves which are at least splash resistant and appropriate for the chemical being handled. Refer to SDS for further information.
d. Laboratory coat or overalls made of a fire retardant material, natural fibres or a laboratory gown. Synthetic fibre materials must not be used for protective garments where there is a flame, fire or intense heat.

(90) PPE must be maintained in good condition, stored appropriately and users must be trained in correct fit and care of the PPE.

(91) Personnel using reusable negative pressure respiratory protection should be fit tested to ensure the correct size is purchased and trained in the use and care of the respirator.

(92) Disposable respiratory protection (masks) shall not be used as a control when using severely toxic chemicals.

(93) All respiratory protection purchased shall be compliant with AS/NZS 1716:2012: Respiratory protective devices or the relevant sections of the new standard series AS ISO 16900.11:2015 to AS ISO 16900.4 Respiratory protective devices.

Emergencies

(94) Staff and students who work with chemicals must be prepared for emergencies. Each individual or workgroup that use chemicals must be prepared to:

a. Immediately shut-down equipment or processes so that they can be safely left unattended in the event of a building evacuation.
b. Provide appropriate first aid treatment in response to chemical exposures including the use of deluge showers and eye wash stations (refer to the SDS for first aid guidance) and the OHS Intranet Web Page - First Aid to locate first aiders.
c. Respond appropriately to gas monitor alarms.
d. Provided it is safe to do so, respond appropriately to chemical spills using approved chemical spill kits and other

dangerous events including fire or explosion.

(95) For further details refer to the OHS Emergency Management web site.

Health Surveillance

(96) Exposure prevention is the first priority when working with chemicals. Health surveillance must be conducted when risk assessments identify exposures which are uncertain or may exceed Safework Australia occupational exposure limits.

(97) All Staff and Students are required to immediately report to their supervisor or lecturer any health effects for example, dizziness, nausea, rashes, skin or eye irritation or respiratory discomfort that may be attributed to chemical exposure. Add as incident to the incident reporting system. Contact the OHS Team for further information.

Transport of Chemicals

(98) Transport of Dangerous Goods on public roads must be in accordance with the Dangerous Goods Transport Regulations.

(99) In most cases the preferred option is to use a contracted specialist licensed Dangerous Goods courier.

(100) There are maximum quantities which can be carried and not constitute a placarded load. Placarded loads require the driver to have a special licence to transport Dangerous Goods. Refer to HSW-G-094 Dangerous Goods Transport Regulations.

Use of Mobile and Electronic Devices

(101) Portable mobile devices can be sources of contamination (into or out of laboratories), may distract scientists during critical tasks and may interfere with some laboratory equipment.

(102) Lap tops and portable tablets must not be carried around and used inside laboratories unless a risk assessment has deemed this acceptable and appropriate control are implemented.

(103) Where devices must be used, designated clean zones for computers/iPad/laptops with protective covers over the key boards are required.

(104) Where smart phones must be carried they -

a. must have a case or protective cover over the phone that can be removed or wiped with decontaminating liquid.
b. must be carried at all times and never placed on shelving or workbenches unless it is a designated clean zone.
c. must only be used with gloves off.

(105) Care must be taken when operating electronic analysis equipment to ensure equipment touch points are not contaminated by chemicals and that electrical components are protected from liquid spills.

Time-sensitive chemicals

(106) These are chemicals which develop hazards not present in the original formulation when they are stored for prolonged periods or are not stored correctly. There are four general categories of time-sensitive chemicals and these categories are based on the unsafe properties that the time-sensitive chemical can develop. These are:

a. Peroxide formers.

b. Peroxide formers that can undergo hazardous polymerization.
c. Materials that become shock or friction sensitive upon the evaporation of a stabilizer.
d. Materials that generate significant additional hazards by undergoing slow chemical reactions.

(107) If the chemical is expected to become unstable over time, this must be identified prior its purchase and arrangements must be made to manage the risk. The recommended practice is to date all new chemicals as they arrive into storage and to include a use by date for time sensitive chemicals. This enables chemical to be monitored and ready identification of lapsed storage periods. (Refer to Guidance on Time Sensitive Chemicals for more information).

Precursor Chemicals and Apparatus

(108) Additional security measures are required when purchasing chemicals and/or apparatus that are known to be used in the manufacture of illicit drugs.

(109) The intended purchase of precursor chemicals and/or apparatus that could be used in the manufacture of illicit drugs must be identified using the HSW-F-052 Pre Purchase Checklist. An End User Declaration must be completed as defined in the Drugs Poisons and Controlled Substances (Precursor Supply) Regulations 2010 (Vic). The 'End User Declaration' form is provided by the chemical supplier.

Scheduled Poisons, Controlled Drugs, Carcinogenic Substances, CWC-Scheduled Chemicals, Chemicals of Security Concern and High Consequence Dangerous Goods

(110) These types of chemicals shall only be purchased by the relevant area technical manager or nominated responsible person. These materials have additional special requirements for their procurement and use.

(111) All staff must refer directly to the WorkSafe intranet site for licensing and other requirements for the purchase and use of carcinogenic substances. All License documentation shall be retained by the College or Campus in a central and secure location.

(112) Staff who manage S8 and S9 chemical stores and sign these materials in and out of storage, but are not registered medical or veterinary practitioners, shall complete a National Police records check.

Records

Required records	Types of Records	Record Kept by	Record retention time
Chemical Registers	Chemical registers - Chemwatch	Maintained by: Academic/ administrative unit Retained by Chemwatch	30 years or until review Retained by Chemwatch
Safety Data Sheets	Vendor or Chemwatch	Chemwatch	30 years or until review Retained by Chemwatch
Risk Assessments	Documented risk assessment	Academic/administrative unit	5 years or until review
OHS Training records	Attendees, content, completed answer sheet with signature of candidate	General VU Training P&C In LMS system Area specific - Academic/administrative unit	7 years or as long as the staff member is employed

Required records	Types of Records	Record Kept by	Record retention time
Use of Scheduled Carcinogens	Names of carcinogens used, Time periods each scheduled carcinogen used	Academic/administrative unit	50 years - Archive to VU Records Management
Poisons Records	Log books, names and addresses of users, destruction records	Academic/administrative unit	5 years
EPA prescribed waste transport	EPA prescribed waste transport certificates	Academic/administrative unit	7 years
Health Surveillance results	Exposure measurements, Exposure reports Medical surveillance records	OHS	50 years
Tank and Pipeline Maintenance	Maitenance and Testing records	Facilities/Technical Services	7 years

Section 7 - Guidelines

(113) Nil.

Section 8 - Supporting Documents

(114) This procedure is required to support the legislation pertaining to chemicals, Dangerous goods, drugs poisons and controlled substances and the occupational health and safety act. For details see OHS Guidance Legislation.

(115) The following Policy documents have been referenced in this procedure:

a. Health and Safety Policy
b. Workplace First Aid Procedure
c. Asbestos Management Procedure
d. OHS Incident and Reporting Investigation Procedure

(116) HSW Guidance Documents

a. HSW-G-024 Conducting Gas Cylinder and System Leak Checks
b. HSW-G-026 Ethanol Permits: Purchase and Use for Laboratories
c. Selection of Gas Cylinder Regulators
d. HSW-G-094 Dangerous Goods Transport Regulations
e. HSW Guidance Note Legislative Compliance
f. Time Sensitive Chemicals

(117) Posters and One Page Information

a. HSW-G-075 Downloading Safety Data Sheets from Chemwatch
b. HSW-G-032 Chemical Labelling
c. Dangerous Goods Classes Segregation Chart
d. Maximum Chemical Storage in a Laboratory Guidance
e. Purchase and Storage of Scheduled Poisons

f. Gas Cylinder Sizes and Water Capacities
g. Chemical Waste Disposal Guidance Notes
h. HSW-F-052 Pre Purchase Checklist

(118) SOP

a. HSW Safe Operating Procedure - Poisons Management

(119) HSW Chemical Training

a. HSW Gas Cylinder Safety Training
b. HSW Dangerous Goods and Hazardous Chemicals Training

(120) HSW Intranet Webpages

a. Chemical Management Intranet Webpage
b. Emergency Management Webpage
c. First Aid Intranet Webpage
d. Incident Management Webpage

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Accountable Officer	Lisa Line Deputy Vice-Chancellor Enterprise and Digital Lisa.Line@vu.edu.au
Responsible Officer	Simone Wright Chief People Officer +61 3 9919 5447
Enquiries Contact	Muhammad Nofal Senior Health and Safety Advisor +61 3 9919 5593 Workplace Relations and Safety