



Curtin University

Chemical Management Plan

Curtin University



CONTENTS

1.	Introduction	1
1.1	Purpose	1
1.2	Aim	1
1.3	Scope	1
1.4	Not included in this plan	1
1.5	Responsibilities	2
2.	Legislation & Licensing	6
2.1	Acts & Regulations	6
2.2	National & International Guidance Materials, Standards and Codes of Practise.	7
2.3	Australian Standards	8
2.4	Additional Approvals, Permits & Licensing.	9
3.	Signage & Placarding	9
4.	Preparation for Work	10
4.1	Training & Induction	10
4.2	Personal Hygiene	11
4.4	Chemical Handling	11
5.	Safety Data Sheets	12
6.	ChemAlert	13
6.1	Electronic Chemical Management System	13
6.2	Chemical Holdings	13
6.3	Other ChemAlert Functions	13
6.4	ChemAlert Barcoding of Containers	13
7.	Risk Assessment of Tasks involving Chemicals	14
7.1	General Information	14
7.2	Roles and Responsibilities	14
7.3	Review of Chemical Task Risk Assessment	15
7.4	Health and Hygiene Management Plan	15
7.5	Health Surveillance	15
7.6	Fieldwork	15
8.	Acquisition	16



8.1	Chemical Pre-Purchase Checklist	16
8.2	Purchasing Chemicals from Overseas Suppliers	16
8.3	Personal Acquisition or Supply	18
9.	Labelling	19
9.1	Labelling systems	19
9.2	GHS	19
9.3	Labelling responsibilities	19
9.4	What information is required to be included on a label?	19
9.5	Labelling design layout	20
9.6	ChemAlert Labels	21
9.7	Special Labelling Situations	21
9.8	Container Incorrectly Labelled	22
10.	Storage	22
10.1	Storage of Chemicals	22
10.2	Storage Requirements	22
10.3	Segregation & Incompatibility of Chemicals	23
10.4	Decanting	25
10.5	Storage of Time Sensitive Chemicals	25
10.6	Chemical Storage in Laboratories	26
10.7	Chemical Storage in Chemical Storage Cabinets	27
10.8	Chemical Storage Using Refrigerators	28
11.	Transportation of Chemicals	28
11.1	General transport around campus	28
11.2	Movement within a building /School area	28
11.3	Field investigations	28
12.	Chemical Waste and Disposal	29
12.1	Introduction	29
12.2	Responsibilities	29
12.3	Chemical Waste Disposal	29
12.4	Trade waste	29
12.5	Labelling Chemical Waste	30



12.6	Storage of Chemical Waste	30
12.7	Old or Obsolete Chemicals	30
12.8	Contaminated items	30
13	Chemical spill or Gas leak	31
13.1	General University Procedure	31
13.2	Preparedness	31
13.3	Spill prevention and containment	31
13.4	Spill clean-up	32
13.5	Chemical incidents and spill reporting	32
14.	Emergency Management	33
14.1	Emergency Response	33
14.2	Emergency Procedures	33
14.3	Dangerous Goods Manifest and Site Plans	34
15.	Incident Reporting	34
15.1	Loss/Theft or suspicious behaviour	34
16.	Records	35
17.	Nanomaterials	35
17.1	Terminology	35
17.2	Legislation	35
17.3	Types of Engineered Nanomaterials	35
17.4	Potential Hazards	37
17.5	SDSs and Control Banding for risk assessment.	37
17.6	Labelling	38
17.7	Spills	38
17.8	Nano waste Management	38
18.	Security Risk Substances (SRS)	39
18.1	Ammonium Nitrate	39
18.2	Licencing and Exemption Quantities	39
19.	Chemicals of Security Concern	40
19.1	Introduction	40
19.2	Chemicals covered by the code	40
19.3	Application of the Code in Universities	41



19.4 Reporting	42
20. Scheduled Poisons	42
20.1 Scheduled Poisons, Medicines and Drugs	42
20.2 Definition of Schedules	42
20.3 Poisons Permit	42
20.4 Purchase	43
20.5 Storage & Access Arrangements	43
20.6 Record Keeping Poisons	43
20.7 Labelling	43
20.8 Disposal	43
21. Concessional Spirits	42
22. Health Surveillance	44
23. Scheduled Carcinogens	44
23.1 Chemical Carcinogens	44
23.2 Carcinogenic substances only to be used for bona fide research	44
23.3 Carcinogenic substances only to be used for purposes approved by the Commissioner	45
23.4 Carcinogenic substances – Asbestos	45
23.5 Access, Health Surveillance & Records	46
24. Agricultural and Veterinary Chemicals	46
24.1 Introduction	46
24.2 Purchase	46
24.3 APVMA Research Permits for off label use	46
24.4 Usage Restrictions for Agricultural or Veterinary purposes.	47
24.5 Labelling	47
24.6 Health Surveillance	47
25. Illicit Drug Precursors	47
25.1 Introduction	47
25.2 Category 1 Items and purchase controls	48
25.3 Category 2 Items and purchase controls	50
26. Radioactive Chemicals	52
27. Health & Safety Documents & Forms	52
27.1 University Documents & Forms	52



28. Revision and Updates	53
28.1 Revision History	53
Appendix 1. Referenced Web Sites	54
A1.1 Curtin Internal Web Sites	54
A1.2 Legislation Web Sites	55
A1.3 Standards, Codes and Further Guidance	55



LIST OF TABLES

Table 1: Main Roles, Responsibilities and Authorities related to chemical management.	3
Table 2: Duties and responsibilities for labelling	19
Table 3: Minimum dimensions for hazard pictograms and sizes of text	20
Table 4: Guidance to compatibility between classes of dangerous goods	24
Table 5: Guidance on Storage Limits of Common Time Sensitive Chemicals.	26
Table 6: Quantities of hazardous chemicals permitted to be stored in a laboratory other than in a chemicals storage cabinet	26
Table 7: Common types of engineered nanomaterials	35
Table 8: Chemical covered by the National Code of Practice for Chemicals of Security Concern.	40
Table 9: Category 1 items under the Misuse of Drugs Act Regulations 1982, Schedule 3.	48
Table 10: Category 2 items under the Misuse of Drugs Act Regulations 1982, Schedule 4.	50



DEFINITIONS

Name	Definition
Australian Dangerous Goods Code (ADG Code)	The Australian Code for the Transport of Dangerous Goods by Road or Rail ('Australian Dangerous Goods Code') 7th Edition.
Australian Standard (AS)	Published documents that are designed to provide guidance to help ensure safety, performance and reliability through the specific goods, services and systems that apply in Australia.
Australian/New Zealand Standard (AS/NZS)	Published documents that are designed to provide guidance to help ensure safety, performance and reliability through the specific goods, services and systems that apply in Australia and New Zealand.
Bulk storage	Storage of liquids, such as petroleum products in tanks as distinguished from drum or packaged storage
Curtin Compliance Officer	A person who is responsible for managing the compliance program for one (or sometimes more) key compliance obligations across the University.
Curtin Hazard and Risk Management (CHARM)	Curtin's' electronic Health and Safety Hazard and Incident Management system, with a focus on Work Health and Safety to people, property and the environment
ChemAlert Authorised Users	Curtin staff who have completed the required training and have been provided with read/write access to ChemAlert.
ChemAlert	The electronic inventory system that Curtin uses to store Safety Data Sheets (SDS) that aids Curtin University to meet its chemical regulatory requirements.
Chemical	Any substances, including Dangerous Goods, Hazardous Substances and other substances that do not fall into either classification. They may be solids, liquids or gases; they may be pure substances or mixtures. (Substance with a defined composition)
Class	The class of dangerous goods, assigned within the ADG Code indicating the hazard, or most predominant hazard, exhibited by the goods.
Container	The means by which a hazardous chemical is, or has been, wholly or partly covered, enclosed or packed, including anything necessary to perform its function as a container.
Controlled Substances	Controlled Substances are a classification of pharmaceuticals and poisons that require licensing under the Medicines and Poisons Act 2014 and Regulations 2016, that specifically relate to restrictions on access, labelling and use. for the purpose of protecting the public from harm.
Controlled Waste	Include all liquid waste, and any waste that cannot be disposed of at a Class I, II or III landfill site. Controlled waste also includes asbestos, clinical or related waste, tyres and waste that has been immobilised or encapsulated. Environmental Protection (Controlled Waste) Regulations 2004 (the Regulations) under the <i>Environmental Protection Act 1986</i>
Correct classification	The set of hazard classes and categories assigned to a hazardous chemical when it is correctly classified.
Dangerous Goods (DG)	Dangerous Goods are solids, liquids or gases, which have been classified as dangerous under the Australian Code for the Transport of Dangerous Goods by Road or Rail, 7th Edition (ADG Code 7). Due to their physical properties, they have the immediate potential to harm people, property or the environment.



Decant	The transfer of a hazardous chemical from a correctly labelled container to another container within a workplace. Examples include a small flask in a research laboratory or a large vessel for reaction components for a process.
Division	The dangerous goods number, within a class of dangerous goods, as assigned in the ADG Code.
Environmental Hazard	
Environmental Protection Authority (EPA)	An independent Board, providing advice to the minister of Environment.
Exposure standard	The airborne concentration of a particular substance or mixture that are required to not be exceeded. It can be represented by: <ul style="list-style-type: none">• an 8-hour time-weighted average• a peak limitation• a short term exposure limit.
Globally Harmonised System (GHS)	The 'Globally Harmonized System of Classification and Labelling of Chemicals, 7th Revised Edition', as included in Schedule 6 of the WHS Regulations.
Hazardous substance	A substance with the potential to cause acute or chronic health effects as listed in the List of Designated Hazardous Substances [NOHSC:10005 (1999)]
Hazardous Chemical	A substance that has the potential to cause acute or chronic health effects, damage to property or environment.
Hazard	Means a situation or thing that has the potential to harm people, property or the environment. The GHS covers physiochemical, health and environmental hazards for hazardous chemicals.
Hazard category	Means a division of criteria within a hazard class in the GHS.
Hazard class	Means the nature of a physical, health or environmental hazard under the GHS. Note: This includes dangerous goods.
Hazard pictogram	Means a graphical composition, including a symbol plus other graphical elements, that is assigned in the GHS to a hazard class or hazard category.
Hazard statement	Means a statement assigned in the GHS to a hazard class or category describing the nature of the hazards of a chemical including, if appropriate, the degree of hazard.
Hazchem Code	Means 'Hazchem Code' under the ADG Code. Also known as the Emergency Action Code.
Health and Safety (H&S)	Curtin University's Health and Safety Department.
Label	Means written, printed or graphical information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the container of a hazardous chemical.
Laboratory	Means a building or room equipped for analysis, genuine research or practical teaching, and which is not used for production purposes.
Manufacture	Includes the activities of packing, repacking, formulating, blending, mixing, making, remaking and synthesizing of the chemical.
Mixture	Means a combination of, or a solution composed of, two or more substances that do not react with each other.
Packing Group (PG)	A grouping of substances (other than those in Hazard Class 2, Class 6 Division 2, and Class 7), in accordance with the degree of danger they present.



Placard	Means a sign or notice: a) displayed or intended for display in a prominent place, or next to a container or storage area for hazardous chemicals at a workplace b) that contains information about the hazardous chemical stored in the container or storage area.
Placard quantity	Means the quantity referred to in Schedule 1 of the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007.
Personal protective clothing and equipment (PPE)	Anything used or worn by a worker to assist to reduce health and safety risk.
Product identifier	Means the name or number used to identify a product on a label or in a safety data sheet.
Research chemical	Means a substance or mixture that is manufactured in a laboratory for genuine research and is not for use or supply for a purpose other than analysis or genuine research.
Risk	The likelihood that a substance will cause harm in the circumstances of its use.
Risk Assessment (RA)	The overall process of risk identification, analysis and evaluation.
Radiation Safety Officer (RSO)	A person responsible for instituting and maintaining a system of radiation safety at Curtin University and approved by the Radiological Council.
Radiation Safety Supervisor (RSS)	A person nominated by the Radiation Safety Officer to act on their behalf in matters related to radiation safety in their area.
Safety Data Sheet (SDS)	A document prepared by a manufacturer or importer of chemicals, which describes the use, chemical and physical properties, health hazard information, precautions for use, safe handling information and the emergency information.
Safe Work procedure (SWP)	A method of work, a process or procedure designed to minimise risk and contains directions on how work is to be carried out safely for hazardous tasks.
Security Risk Substance (SRS)	A substance named in Schedule 2 of the Dangerous Goods Safety (Security Risk Substances) Regulations 2007.
Standard Uniform Scheduling of Medicines and Poisons (SUSMP)	Means the Standard for the Uniform Scheduling of Medicines and Poisons, published by the National Drugs and Poisons Schedule Committee as amended from time to time.
Substance	Means a solid, liquid or gas or a mixture of them.
Transfer	Includes the pumping, dispensing or decanting from one container into another or from one place to another.
Work Health and Safety Legislation (WHS)	Work Health and Safety Act 2020 and Regulations 2022.



1. INTRODUCTION

1.1 Purpose

The purpose of this document is to outline the required management processes for chemicals at all of Curtin University Australian sites based on all applicable legislation, codes of practice and Australian Standards. This includes the acquisition, use, storage, management, transportation and disposal of chemicals.

1.2 Aim

The aim of this document is to ensure that Curtin University:

- minimises the risk of adverse health effects and protects the safety of staff, students, contractors and members of the public, due to exposure to hazardous substances and dangerous goods;
- implements mitigation strategies to prevent adverse environmental impacts; and
- complies with State and Commonwealth regulatory requirements.

1.3 Scope

This document applies to all Curtin University staff, students and contractors who are required to use chemicals and/or controlled substances within the scope of their duties on Curtin University's Australian sites.

The Chemical Management Plan is intended for the use of chemicals such as, but not limited to, hazardous substances/chemicals, dangerous goods and otherwise controlled substances. The general legislative requirements for hazardous substances and dangerous goods will be outlined in the first portion of the document. The latter portion will cover other controlled substances that require additional specific controls.

This document is to be used in conjunction with other Curtin documentation and procedures surrounding the management of chemicals (including specific area safety management plans, area and task specific risk assessments and safe work procedures).

1.4 Not included in this plan

The following is not included as part of this plan:

- Class 1 Dangerous goods (Explosives)
- Biological safety (Biological Materials and Genetically Modified Organisms)
- Radiation safety – including lasers and NORMS
- The built environment - Asbestos, natural mineral fibres (NMF), CFC's
- Bulk storage of petroleum fuels (including underground storage tanks)
- Chemicals stored in Offices & Tea prep areas in domestic quantities

For each of these topics please see alternative guidance document or seek advice to ensure appropriate risk assessment and safety documentation are completed, reviewed and approved.



1.5 Responsibilities

All staff, students and contractors who acquire, use, store or dispose of chemicals or controlled substances on behalf of Curtin University are required to follow the Health and Safety Responsibilities Procedures located at Curtin's [Policies](#) page.

Table 1 provides a summary of the main roles and responsibilities for chemical management across the Curtin campus. Specific responsibilities will also be outlined in each subsection where applicable.

Table 1: Main Roles, Responsibilities and Authorities related to chemical management.

Role	Responsibility for health and safety	Responsibility for chemical management	Authority
Heads of Schools/Area Managers	To implement and maintain an effective health and safety system within the School or Area that is consistent with the Work Health and Safety Act 2020 and other legislative requirements.	To implement and maintain within the School or Area measures consistent with Curtin's Chemical Management Plan.	To allocate responsibility and delegation of authority for chemical management.
Managers/Supervisors	To undertake effective health and safety measures to ensure compliance with the Work Health and Safety Act 2020 and other legislative requirements.	To implement and maintain within the School or Area measures consistent with Curtin's Chemical Management Plan. For areas of responsibility ensure that chemicals are stored and handled within the limitations of the provided infrastructure. To ensure chemical registers and site placarding for areas of responsibility are up to date on ChemAlert.	
Individual workers/students	To comply with the Work Health and Safety Act 2020 and all reasonable directives given in relation to health and safety at work, to ensure compliance with University and legislative health and safety requirements.	To comply with the Work Health and Safety Act 2020 and all reasonable directives given in relation to chemical management at work, to ensure compliance with University and legislative health and safety requirements. To report all incidents, including those involving chemicals, via the CHARM system.	
Dangerous Goods License Holders	To comply with the Work Health and Safety Act 2020 and all reasonable directives given in relation to health and safety at work, to ensure compliance with University and legislative health and safety requirements.	Maintain quantities of Dangerous Goods within license limitations and adhere to other license conditions. Maintain a Dangerous Goods Manifest and Site Plan and make available to Emergency Services.	



Role	Responsibility for health and safety	Responsibility for chemical management	Authority
Health and Safety Department	<p>To provide specialist advice, regular auditing, issue safety bulletins, and support to areas in relation to Hazardous Substances, Dangerous Goods, Poisons, and Controlled Substances.</p> <p>Co-ordinating and administering access to the Chemical Register via the ChemAlert Database, and the incident reporting system CHARM</p> <p>Coordinating Chemical Waste Disposals.</p> <p>Reporting to statutory bodies as per Curtin's Incident and Hazard Reporting and Investigation Procedures.</p>	<p>Maintaining the Chemical Management Plan, related Guidelines, and information provided via the hazardous materials website.</p> <p>Provide advice to area managers on compliance incidents and breaches.</p> <p>Maintaining the Poisons Act Compliance Management Plan.</p> <p>Issue advice to PF&D for the development and revision of Project Delivery Guidelines related to Hazardous Substances and Dangerous Goods.</p> <p>Review and advise on Dangerous Goods Placards on Curtin's sites and facilities so that correct information is visible to emergency services.</p>	<p>To authorise the issue of guideline and management documents.</p>
Emergency Management Team	<p>To co-ordinate any communication between Curtin and emergency authorities for the purpose of planning emergency response.</p>	<p>To ensure emergency planning is undertaken.</p>	<p>To authorise the issue of guideline and management documents.</p>
Critical Incident Management Team (CIMT)	<p>Provide stewardship during a time of crisis.</p>	<p>To lead Curtin through any externally controlled emergency situations. To control communications with emergency services, regulators or third parties. To invoke Curtin business continuity plan.</p>	<p>To provide direction and resourcing in times of crisis.</p>
Hazardous Materials Technical Advisory Group – (HM TAG)	<p>To provide advice the University on matters relating to Hazardous Materials</p>		<p>Advisory</p>



Role	Responsibility for health and safety	Responsibility for chemical management	Authority
Curtin Properties, Facilities & Development (PF&D)	<p>To deliver new builds that are compliant with Health and Safety and Dangerous Goods legislation in consultation with facility users.</p> <p>To modify non-compliant infrastructure in consultation with stakeholders where the non-compliance has been assessed by subject matter experts as exceeding Curtin's Risk Appetite or to comply with legislative requirements.</p>	<p>To engage Hazardous Substances and/or Dangerous Goods subject matter experts to provide advice on capital projects that deliver or impact facilities where Hazardous Substances / Dangerous Goods are stored or handled.</p> <p>To maintain Project Delivery Guidelines including those related to Hazardous Substances and Dangerous Goods which will serve to guide contractors delivering projects impacting the above spaces.</p> <p>To engage Hazardous Substances and/or Dangerous Goods subject matter experts to review and risk assess current infrastructure as needed where Hazardous Substances / Dangerous Goods are handled or stored.</p> <p>To ensure Curtin leases require tenants to comply with Curtin's Chemical Management Plan by including a clause requiring tenants to report chemical stocks to the nominated Facility Manager or other Curtin representative in the format specified by that representative.</p> <p>Compliance with legislation.</p> <p>Management of ongoing preventative maintenance plan for supporting infrastructure.</p>	To plan, deliver, maintain and operate Curtin facilities.
Compliance Officers	Ensuring compliance with the relevant legislation and reporting to regulators as required (as per Compliance Procedures).	<p>Maintaining the Compliance Risk Assessments and Compliance Management Plans for relevant Legislation for example Defence Trade, Poisons, Radiation and Dangerous Goods.</p> <p>Monitor Legislation within area of responsibility for updates and coordinate required actions with Curtin's relevant Offices and Departments.</p>	To monitor, measure and improve University-wide the compliance program for their key compliance obligations.



2. LEGISLATION & LICENSING

2.1 Acts & Regulations

The State and Commonwealth legislation that governs the use, storage, handling and disposal of chemicals is complex and considerable. The following list represents the Acts and Regulations that may be applicable to Curtin University They can be accessed by the following websites.

2.1.1 WA State Law

Accessible via the [Western Australian Legislation](#).

- Agricultural and Veterinary Chemicals Act 1995
- Agricultural and Veterinary Chemicals Regulations 1995
- Dangerous Goods Safety Act (2004)
- Dangerous Goods Safety (General) Regulations (2007)
- Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations (2007)
- Dangerous Goods Safety (Security Risk Substances) Regulations (2007)
- Environmental Protection Act (1986)
- Environmental Protection (Controlled Waste) Regulations (2004)
- Medicines and Poisons Act (2014)
- Medicines and Poisons Regulations (2016)
- Misuse of Drugs Act (1981)
- Misuse of Drugs Regulations (1982)
- Radiation Safety Act (1975)
- Radiation Safety (General) Regulations (1983)
- Radiation Safety (Qualifications) Regulations 1980 (WA)
- Radiation Safety (Transport and Radioactive Substances) Regulations 2002 (WA)
- Work Health and Safety Act 2020
- Work Health and Safety (General) Regulations 2022



2.2.2 Commonwealth Law

Accessible under the [Federal Register of Legislation](#).

- Chemical Weapons (Prohibition) Act (1994)
- Chemical Weapons (Prohibition) Regulations (1997)
- Industrial Chemicals (Notification and Assessment) Amendment Act 2019
- Agricultural and Veterinary Chemicals Code Act (1994)
- Agricultural and Veterinary Chemicals Code Regulations (1995)
- Customs Act (1901)
- Defence Trade Controls Act (2012)
- Excise Act (1901)
- Excise Regulations (2015)
- Therapeutic Goods Act (1989)

2.2 National & International Guidance Materials, Standards and Codes of Practise.

There is an extensive list of Standards, Codes and Guidance Materials relevant to the management of chemicals at Curtin University. These include:

- GHS Hazardous Chemical Information List
- Australian Dangerous Goods Code [Edition 7.8 (2022)]
- International Air Transport Association (IATA) Dangerous Goods Regulations
- Standard for the Uniform Scheduling of Medicines and Poisons No 24. (SUSMP) June 2019
- Labelling of Workplace Hazardous Chemicals Code of Practice (2015, WHS)
- Workplace Exposure Standards for Airborne Contaminants (2013, WHS)
- Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants (2013, WHS)
- Storage and Handling of Dangerous Goods Code of Practice.
- Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)]
- Hazardous Chemical Information System (HCIS)
- National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012 (1994)]
- Code of Practice for Supply Diversion into Illicit Drug Manufacture (PACIA)
- Radiation Protection Series (RPS) published by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)
- Code of Practices for the use of Agricultural and Veterinary Chemicals in Western Australia



2.3 Australian Standards

The Australian Standards that may apply to the use, storage, handling and disposal of chemicals at Curtin University can be accessed on SAI Global via the [Curtin Library databases](#).

- AS 2243.1:2021 Safety in Laboratories, Part 1: Planning and Operational Aspects
- AS 2243.2:2021 Safety in Laboratories, Part 2: Chemical Aspects and Storage
- AS 2243.4:2021 Safety in laboratories, Part 4: Ionizing radiations
- AS/NZS 3833:2007 The Storage and Handling of Mixed Classes of Dangerous Goods, in Packages and Intermediate Bulk Containers
- AS 1940:2017 The Storage and Handling of Flammable and Combustible Liquids
- AS 2507-1998 The storage and handling of agricultural and veterinary chemicals
- AS 3780:2023 Storage and handling of corrosive substances
- AS 4775:2007 Emergency Eyewash and Shower Equipment.
- AS 4332-2004 The storage and handling of gases in cylinders.
- AS 1596:2008 The storage and handling of LP gas.
- AS 1894:1997 The storage and handling of non-flammable cryogenic and refrigerated liquids.
- AS 4326-2008 The storage and handling of oxidising agents
- AS 2714-2008 The storage and handling of organic peroxides
- AS/NZS 4452:1997The storage and handling of toxic substances
- AS 2780-2023The storage and handling of corrosive substances
- AS 4681:2000 The storage and handling of class 9 (miscellaneous) dangerous goods and articles
- AS 1319-1994 Safety Signs for the Occupational Environment
- AS/NZS 1020:2023The control of undesirable static electricity
- AS/NZS 2022:2023 Anhydrous ammonia – storage and handling
- AS/NZS 2229:2004 Fuel dispensing equipment for explosive atmospheres



2.4 Additional Approvals, Permits & Licensing.

The procurement and possession of some chemical classifications have additional approval, permit and/or licensing requirements. Refer to the relevant sections in this document for details.

- Hazardous Substances
- Nanomaterials
- Scheduled Carcinogens
- Dangerous Goods
- Security Risk Substances
- Chemicals of Security Concern
- Scheduled Poisons (including medicines and drugs)
- Precursor Chemicals for Illicit drugs
- Agricultural Chemicals and Veterinary Medicines
- Radioactive Chemicals
- Concessional Spirits

3. SIGNAGE & PLACARDING

3.1 Signage & Placarding of Chemical Stores and Buildings

Individual Schools/Areas are required to ensure that the correct placarding is displayed on their sites. Placarding is required under Dangerous Goods (Storage and Handling of Non-explosives) Regulations 2007 where volumes stored exceed placarding quantities. For more details refer to AS 2243.2 Chemical Aspects and Storage and AS 1319 Safety Signage for the Occupational Environment and contact Health & Safety at healthandsafety@curtin.edu.au.

3.2 Laboratory Signage

Individual Schools/Areas are required to ensure that signage is displayed in appropriate locations, including on cupboards, lockers and refrigerators to identify the presence of hazardous chemicals. This signage is to indicate the type of chemicals being stored (e.g. the class label for a dangerous good). Additional signs may also be required, such as “do not use to store food”.



4. PREPARATION FOR WORK

4.1 Training & Induction

Areas are required to ensure that workers and students are provided with relevant chemical information, instruction and training to ensure that they have the skills and knowledge required to perform the processes safely, so far as is reasonably practicable. The level of training is based on prior knowledge, skills and experience but is a prerequisite to work within University facilities.

Where staff hold management responsibilities for chemicals in the workplace, additional training and verification of competency are required.

Chemical safety training and induction is required to include the following processes:

- Pre-purchase
- Legislative requirements
- Chemical classification
- Chemical risk assessment
- Labelling
- Storage and segregation
- Spills and emergency management
- Handling, storage and disposal of chemical waste and containers
- Transportation
- Personal Protective Equipment & clothing (PPE)
- Safety Data Sheet (SDS) and other information resources
- Safe Work Procedures (SWP)
- Work Health and Safety Responsibilities for Managers and Supervisors Training
- Hazardous materials
- Gas safety; and
- ChemAlert.

For more information refer to the [Health and Safety training](#) website.



4.2 Personal Hygiene

Irrespective of the chemical and its associated risks, personal hygiene when handling and storing chemicals is an integral part of controlling physical exposure. Personal hygiene requirements include:

- Signage that clearly identifies the conditions of entry and use of the space
- Providing readily available clean wash up facilities
- Washing hands immediately after using chemicals
- Storing food and drinks separately from chemicals
- Ensure that there is no eating or drinking in laboratories, workshops and other areas where chemicals are used
- Display rules in laboratories and workshops that include hygiene requirements
- Ensuring PPE is fit for purpose, correctly worn and stored.

4.3 Chemical Handling

4.3.1 Introduction

In addition to the documentation required for the activity to be undertaken, you must also consider the suitability of the facility along with other considerations such as:

- Is the right equipment available?
- Is the right emergency response kit available?
- Does a fume cupboard need to be used? If so what type (recirculating or non-recirculating) and does it need a scrubber? Is this available for use and are the previous chemicals used compatible with what I am using?
- Is there adequate space to work in?
- Do I have the equipment and appropriate storage for the waste products being generated?
- Is this activity compatible with others around me?

4.3.2 Package opening and transfer

Packages are to only be opened in suitably ventilated fume cupboards never in the in the storage cabinet, shelf or immediate storage area. This avoids the risk of handling obstructions, close proximity to other packages, accidental escape of chemicals, escape of vapours or dust during transfers and possible reaction with other substances (AS2243.2).

Ventilation is provided for the dispensing area to remove vapours and dusts to levels that ensure a safe environment. Exposure standards may be used for guidance. Fume cupboards may be necessary for particularly hazardous chemicals.

Manual handling equipment and/or safe practices are to be utilised when opening or transferring packages.

Where packages are opened for transfer of contents, sampling or repackaging, the exterior must be cleaned, and the original package must be returned to storage or disposed.

Liquid dangerous goods must not to be poured (except from small containers, while using appropriate personal protection).



Do not decant or pour liquids to reduce the risk of splashing, overfilling and vapours escaping. Hand-operated dispensing pumps shall be used instead. For flammable liquids, the risk of static electricity discharge must also be considered. If decanting is unavoidable (e.g. with viscous liquids), a risk assessment must be conducted to ensure appropriate controls are in place.

5. SAFETY DATA SHEETS

An SDS, is a document (written form or online) that provides information on the properties of chemicals and how they affect health, safety and the environment in the workplace available. It is produced by the manufacturer/supplier/importer for a specific hazardous chemical. These are required to be made available on purchase of the chemical (See section 8). **IMPORTANT:** If you purchase a chemical directly from an overseas supplier, Curtin University becomes the importer and bears additional responsibilities (See section 8.2). Priority must be given to purchasing from an Australian supplier, particularly those chemicals already in the ChemAlert database.

The manufacturer/supplier/importer are required to update each of their SDSs at least every five years. If the SDS listed on ChemAlert is more than 5 years old, the Manager/Supervisor shall request from the manufacturer/supplier a more recent version and provide it to the H&S ChemAlert Administrator so that it may be uploaded into ChemAlert.

Areas are required to retain copies of SDS for the hazardous chemicals that they order and are required to provide workers with access to these SDS in either hard copy or electronic format.

All SDS must be Australian compliant. It must be :

- Written in English
- Contain unit measures expressed in Australian legal units of measurement under the National Measurement Act 1960 (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.

An SDS is required to state information about the chemical in the following 16 sections:

- 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
- Section 11 – Toxicological information
- Section 12 – Ecological information
- Section 13 – Disposal considerations
- Section 14 – Transport information
- Section 15 – Regulatory information
- Section 16 – Any other relevant information



An explanation of how to read a Safety Data Sheet can be found on the [H&S hazardous materials](#) website.

Where a chemical manufacturer is no longer in business and a supplied chemical is in use/stored, the chemical is required to be disposed of when the SDS expires.

6. CHEMALERT

6.1 Electronic Chemical Management System

Curtin uses ChemAlert as its electronic chemical management system. It provides a register of hazardous chemicals stored, access to current manufacturer safety data sheets, can be used to generate substance labels, local hazardous substance registers and provides dangerous goods manifests for emergency services. It is the local area's responsibility to ensure that the chemicals and quantities held are accurately updated in ChemAlert.

All university staff and students have read-only access to ChemAlert SDS database via the H&S [website](#). Authorised users with passwords can access the full version of ChemAlert for viewing and maintaining chemical stores and manifests.

Copies of SDS for all chemicals must be held by each School or Faculty and also made available to the H&S ChemAlert Administrator for uploading into ChemAlert prior to use of the chemical.

Online training for ChemAlert is available for all staff and HDR students who may be required to use chemicals. Specific Search & Stock training is made available through iPerform for staff who require a ChemAlert login. The Head of School/Area shall nominate appropriate staff to manage ChemAlert. contact the H&S Department for further information.

6.2 Chemical Holdings

All University workplaces are required to enter the maximum quantities of hazardous chemicals stored into the ChemAlert Stockholding for the relevant storage location (partly empty containers are considered as full for this purpose). Each area shall check the ChemAlert Stockholding against the physical stock held (i.e. stocktake) at least twice yearly to ensure all chemicals are entered and the information is correct. This process should be completed prior to the chemical waste disposals.

Note: Refer also to section *10.5 Storage of time sensitive chemicals* where shorter timeframes are specified for the physical inspection of some chemical holdings due to risk.

6.3 Other ChemAlert Functions

Authorised login holders can use ChemAlert to produce various reports and information about the stock holdings. These include an Incompatibility Report to assist with the identification of potential chemical storage incompatibilities. ChemAlert also has report functionalities that provide information such as poisons scheduling on chemicals held. It should be noted that these reports are a guide and are not a replacement for SDS or risk assessment.

6.4 ChemAlert Barcoding of Containers

ChemAlert can generate barcodes for containers, allowing for tracking. Curtin requires that each container is tracked individually and has its own unique barcode. Batch barcoding of chemicals is not permitted. All Chemicals used in a work capacity must be barcoded.

For advice on barcoding please refer to the [ChemAlert](#) page.



7. RISK ASSESSMENT OF TASKS INVOLVING CHEMICALS

7.1 General Information

Before undertaking any task using hazardous or dangerous chemicals; a risk assessment is required to be undertaken to determine the possible hazards of the product and the control measures required for its safe use in the task. When performing risk assessments, utilise sources of health and safety information such as SDSs from ChemAlert (SDS database) and/or potential suppliers, together with information available from reputable sources, such as Safe Work Australia, WorkSafe and the World Health Organisation. Risk assessment shall be performed using local area process unless it is:

- A new activity
- A novel activity
- A high risk activity

In these instances, risk assessment should be completed in CHARM.

7.2 Roles and Responsibilities

Who is responsible for ensuring the risk assessment is completed?

Managers and supervisors are responsible for ensuring that risk assessments are undertaken in the areas of their control, prior to the task being undertaken. The manager/supervisor is also responsible for ensuring risk assessments are stored, available, reviewed and archived as required.

Who Completes the Risk Assessment?

Task based risk assessments shall be conducted by the person conducting the work activity with chemicals. The manager/supervisor approves the risk assessment ensuring that it has been reviewed by a competent person who has understanding of the work being undertaken and that appropriate hazard control measures are implemented prior to commencement of work. (The competent person may also be the manager/supervisor).

Who is responsible for authorisation?

The manager/supervisor is required to authorise the risk assessment to allow the work to commence. Approval may be escalated based on an evaluation of the residual risk according to Curtin [University's risk reference tables](#), located in the [Risk Management Framework](#).



7.3 Review of Chemical Task Risk Assessment

Risk Assessment must be reviewed where there are changes to the environment or systems of work that alter the effectiveness of the original controls such as:

- Change of chemical supplier
- A new chemical is introduced into the work area
- The process or plant is modified
- New information on the hazards for the chemical becomes available
- Monitoring (environmental or health surveillance) indicates that controls are not adequate
- New methods are introduced, or procedures are modified
- There are changes in volumes, degree of exposure of chemicals
- Accidents and near misses occur
- Chemicals are moved to a new location; and
- Improved control measures become available.

It is good work practice to review assessments whenever undertaking an activity. Safe Work Procedures shall be developed when an activity becomes routine and is used by multiple people. The Safe Work Procedure records the residual risk only.

7.4 Health and Hygiene Management Plan

The [Health and Hygiene Management Plan](#) outlines the process for identifying, assessing, controlling and communicating health risks associated with potential exposure to chemical, physical, biological, ergonomic and psychosocial hazards, in order to prevent occupational illness and disease. The Health and Hygiene Management Plan should be used to help develop your task based risk assessment.

7.5 Health Surveillance

Health surveillance is required for workers who are exposed to noise or vibration, ionising radiation, solvents, fumes, dusts and other chemicals or substances hazardous to health as defined by the regulator. Health surveillance will be managed in accordance with the [Health Surveillance Guideline](#) and arrangement of this surveillance is the responsibility of the School/area where the works are being undertaken. Records of health surveillance are required to be accessed and stored in line with Curtin's Privacy Policy and legislated requirements.

7.6 Fieldwork

Fieldwork is any approved practical work, teaching, study or research activity, usually conducted outside the normal place of University business. Information about the forms required for fieldwork can be found at [the Work Integrated Learning website](#). Where chemicals are required to be used during fieldwork, a risk assessment shall be undertaken, and appropriate controls put in place before handling them. Refer to section 11.3 regarding the transport of chemicals in fieldwork.



8. ACQUISITION.

8.1 Chemical Pre-acquisition Process

It is a Curtin requirement when acquiring new chemicals into an area, that a [Chemical or Gas Pre-purchase Checklist](#) is completed. Where the substances are regulated or controlled, evidence of appropriate acquisition authority are required to be provided prior to sign off.

All chemicals are required to be acquired from an Australian supplier where possible and an Australian compliant SDS provided. All labelling must be in English. Where this is not possible, chemicals acquired from overseas suppliers will be considered, however significantly greater regulation applies, See Section 8.2.

Please refer to the [Pre-purchase Risk Identification Guideline](#) for important information regarding the acquisition of chemicals.

8.2 Purchasing Chemicals from Overseas Suppliers

Where possible, acquire from an Australian supplier. Only when a chemical cannot be acquired from an Australian supplier, should an overseas supplier be considered.

When a chemical is acquired directly from an overseas supplier, the purchaser takes over the responsibilities of the importer and supplier. This includes complying with all the legislative requirements under the different acts that govern the different type of chemicals that may be imported.

Obligations also includes Australian compliant labelling of the chemical and the production of an Australian Compliant Safety Data Sheet. Where a compliant SDS cannot be supplied, the chemical cannot be acquired as you are unable to meet your responsibility as the importer. Contact Health and Safety for further information.

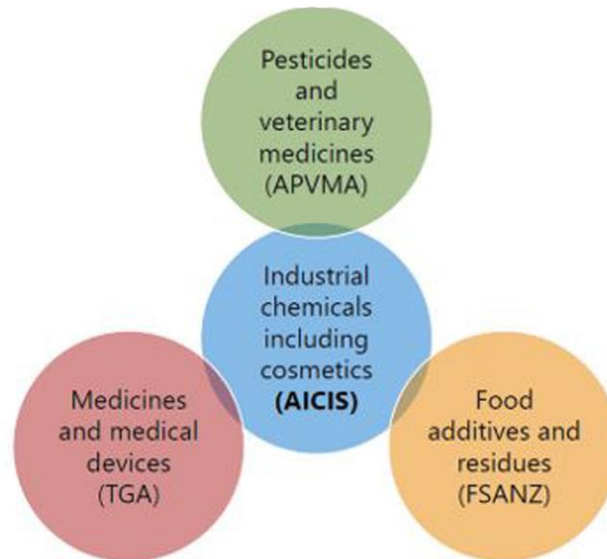
All imported chemicals also require classification under the Australian Industrial Chemical Introduction Scheme (AICIS) prior to importation, see section 8.2.1. **Records of all imports and categorisation must be kept for 5 years and provided to Health and Safety by the 30th of September each year.** Curtin is registered with AICIS and is required to declare all imports.

Dependent on the chemical being purchased, there may also be additional legislative restrictions and/or requirements that apply to the importation of that substance. Importation controls or restrictions may apply under the following legislation. This is not an exhaustive list.

- Customs Act 1901 & Narcotic Drug Act 1967 (For example controls apply to the import of narcotic drugs, psychotropic substances, precursors chemicals and antibiotics androgenic/anabolic substances)
- Chemical Weapons (Prohibition) Act 1994 & Regulations 1997
- Agricultural and Veterinary Chemicals Code Act 1995 & Regulations 1995



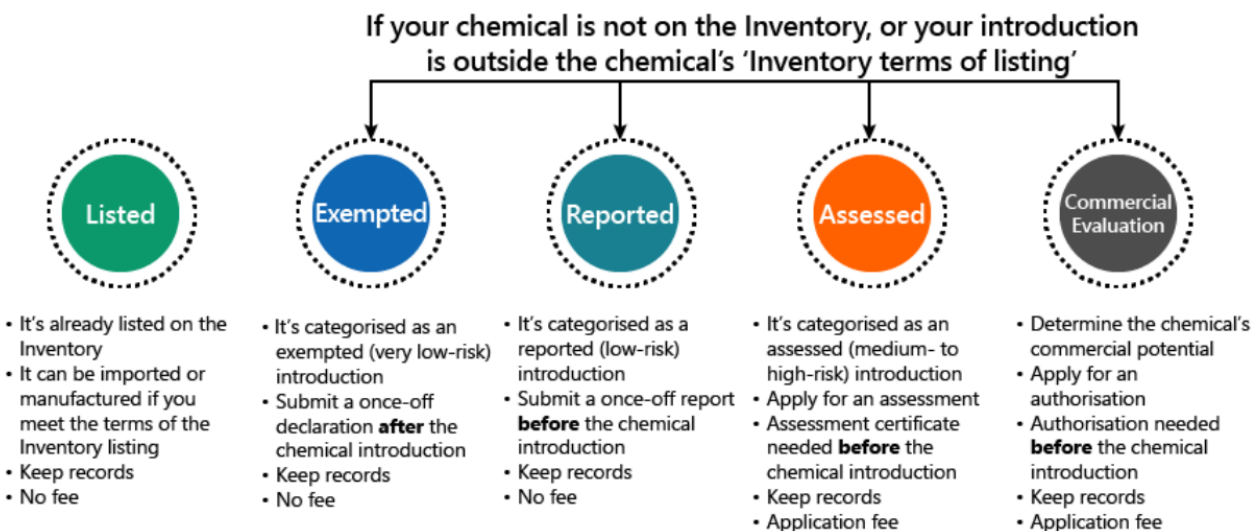
Regulation of chemicals in Australia



8.2.1 Australian Chemical Introduction Scheme (AICIS)

All chemicals which are introduced (by either importing or manufacturing), require reporting to the AICIS. They must be categorised prior to importation and records kept of all imports. Chemicals are categorised as:

- **Listed** – a chemical already in AICIS inventory and already available for use in Australia.
- **Exempt** – a chemical that meets a very strict set of criteria that is considered very low risk to both human and environment.
- **Reported** – meets AICIS criteria to be considered low risk to human health or the environment. A once-off pre-introduction report is required prior to importing.
- **Assessed** – AICIS considers this introduction to be medium to high human or environment. It is not on the chemical inventory and requires assessment by AICIS prior to introduction. Fees apply and cost is the responsibility of the importer.
- **Commercial evaluation** – is an alternative assessment to the exempt, reported for assessed category. This requires an application for commercial evaluation authorisation. **Fees apply and cost is the responsibility of the importer.**



Curtin is registered with AICIS. You can search for listed chemicals on the [AICIS](#) site. For further information contact Health and Safety.

8.3 Personal Acquisition or Supply

8.3.1 Chemical Donations

Curtin does not accept chemical donations as most often their provenance, age and stability are difficult to verify.

Exceptions can be made with the prior written approval of the Head of School, where sufficient justification is made as to why the chemical is required. This justification is to include a risk assessment incorporating the life cycle of the chemical and cost of disposal.

8.3.2 Samples

When Curtin receives samples for research and/or analytical purposes, planning and risk assessment are required to be in place prior to receiving the samples. A sample management plan shall be generated detailing what is being accepted. This is to include a risk assessment incorporating the life cycle of the sample.

Specific attention is required for the disposal processes related to the samples, in consultation with the client. **All disposal costs shall be defined in writing with the client as part of the research contract before accepting the samples into the University.**

8.3.3 Research Collaboration

Where chemicals are acquired for collaborative work, staff and students will follow the policies and procedures of the institution where the chemicals are to be held and used. Chemicals will not be transported between institutions and cost of disposal must be factored in during planning.



9. LABELLING

9.1 Labelling systems

The purpose of labelling is to ensure that the contents of a container can be readily identified by product name and to provide basic information (its ingredient(s), hazards and precautions for safe use).

Labelling of containers is required to adhere to Globally Harmonized System of Classification and Labelling of Chemicals 7th revised edition .

9.2 Globally Harmonised System

The GHS is a single internationally agreed system of [chemical classification and hazard communication through labelling](#) and SDS. The GHS is published by the United Nations. It includes harmonised criteria for the classification of:

- Physical hazards;
- Health hazards; and
- Environmental hazards.

9.3 Labelling responsibilities

Table 2: Duties and responsibilities for labelling

Duty holder	Responsibilities
Manufacturers and importers	<ul style="list-style-type: none">• Ensure that the chemical contains Australian compliant labelling.
Suppliers	<ul style="list-style-type: none">• Ensure that all hazardous chemicals supplied are correctly labelled.
Person who is conducting a business or undertaking (Curtin University)	<ul style="list-style-type: none">• Ensure that all hazardous chemical used, handled or stored at the workplace are correctly labelled.• Ensure that all manufactured, transferred or decanted hazardous chemicals are correctly labelled.• Ensure that containers that are labelled and used for holding only the hazardous chemical shown on the label.

9.4 What information is required on a chemical label?

A hazardous chemical is correctly labelled if the chemical is packed in a container that:

- Is written in English
- Contains the product identifier
- The name, Australian address and business telephone number of either the manufacturer or importer
- The identity and proportion disclosed, in accordance with Schedule 8 of the WHS Regulations, for each chemical ingredient
- Any hazard pictogram(s) consistent with the correct classification(s) of the chemical
- Any hazard statement(s), signal word and precautionary statement(s) that is consistent with the correct classification(s) of the chemical



- Any information about the hazards, first aid and emergency procedures relevant to the chemical, which are not otherwise included in the hazard statement or precautionary statement
- the expiry date of the chemical, if applicable

You may include any information on the label that does not contradict or cast doubt on any other information that is required on the label. The following additional information can also be included on the label, where available:

- An emergency phone number, for specific poisons or treatment advice
- The overseas name, address and telephone number of the manufacturer or supplier
- A valid website or internet address
- Reference to the safety data sheet, for example a statement on the label that says: "Additional information is listed in the safety data sheet"

9.5 Labelling design layout

The label is required to be written English.

The size of a label should be:

- Large enough to contain all of the relevant hazard and other information in a size and style that is easily visible and legible in the workplace
- Appropriate to the size of the container, with larger labels present on larger containers.

The information on a label can be presented using one or more panels, or sections, dependent on the size and shape of the container. The label shall be firmly secured to the outside of the container and be visible in the normal storage position. The label shall be sufficiently durable so as to remain legible and firmly attached to the container for the foreseeable lifetime of the product under normal storage and handling conditions.

The information and hazard pictograms on any label shall be printed in a colour or colours that provide a distinct contrast to the background colour.

The following table is provided as a guide for the minimum dimensions for hazard pictograms and sizes of text on containers of various capacities:

Table 3: Minimum dimensions for hazard pictograms and sizes of text

Container capacity	Minimum hazard pictogram dimensions	Minimum text size
≤ 500 mL	15 x 15 mm	2.5 mm
> 500 mL and ≤ 5 L	20 x 20 mm	3 mm
> 5 L and ≤ 25 L	50 x 50 mm	5 mm
≥ 25 L	100 x 100 mm	7 mm

Note 1: Refer to the ADG Code for marking requirements for dangerous goods being transported.



9.6 ChemAlert Labels

9.6.1 For original containers.

In most cases the simplest method to produce compliant labels is to print them from ChemAlert which provides a range of labels suitable for drums, winchesters and small bottles, including label templates. Additional labels may be required if the vendor cannot or will not provide replacement labels swiftly, or where decanting from the original container into smaller/additional containers has occurred

9.7 Special Labelling Situations

9.7.1 Small containers

Where a hazardous chemical is packaged in a container that is too small to attach a label with information that is required of hazardous chemical labels in general, then an abridged label must be used. This abridged label is required to be written in English and include the following:

- The product identifier;
- The name, Australian address and business telephone number of either the manufacturer or importer;
- A hazard pictogram or hazard statement that is consistent with the correct classification of the chemical; and
- Any other information required for hazardous chemicals labels in general that is reasonably practicable to include.

9.7.2 Research chemicals or samples for analysis

If a hazardous chemical is used for research purposes only or is a sample for analysis, the label is required to, at a minimum, be written in English and include the product identifier and a hazard pictogram or hazard statement that is consistent with the correct classification of the chemical.

9.7.3 Decanted or transferred hazardous chemicals

If a hazardous chemical has been decanted or transferred from the container in which it was packed and not used immediately or supplied to someone else, the label is required at a minimum, be written in English and include the following:

- The product identifier; and
- A hazard pictogram or hazard statement consistent with the correct classification of the chemical.

Where the entire amount of a decanted hazardous chemical will be used immediately, labelling of its container is not required.

A decanted hazardous chemical and its container is required to be:

- Attended at all times by the person who decanted it
- Only used only by people present at the decanting process
- Made safe through cleaning processes immediately after use



9.8 Container Incorrectly Labelled

If a container is not properly labelled, for example the label has been lost, the container shall have the product name, if known, attached to it. Unlabelled containers of an unknown chemical shall be labelled:

“CAUTION DO NOT USE: UNKNOWN SUBSTANCE”.

The container shall be removed from use and the Chemical Waste Management Contractor contacted to arrange for its disposal.

10. STORAGE

10.1 Storage of Chemicals

Chemicals are required to be stored appropriately according to legislative requirements.

10.2 Storage Requirements

10.2.1 Storage principles

The following general principles apply to the storage of chemicals.

- The quantities of hazardous chemicals stored must be kept to a minimum, commensurate with their usage and shelf life. Some chemicals degrade in storage and can become more hazardous. Such chemicals shall be identified and managed appropriately.
- Containers that have held hazardous chemicals shall be treated as full unless the receptacle or package has been rendered free from hazardous chemicals.
- Storage of chemicals, including wastes, shall be based on the properties and mutual reactivities of the chemicals. Incompatible chemicals shall be kept segregated from one another, e.g. by fire isolation in a chemical storage cabinet or segregation in space. A separate spill catchment shall be provided for each incompatible liquid. Do not simply store chemicals in alphabetical order.
- Opening of packages, transferring of contents, dispensing of chemicals, or sampling shall not be conducted in or on top of a cabinet or a cupboard for storing hazardous chemicals unless it is specifically designed for this purpose and appropriate procedures and equipment are used.
- Provision shall be made for the receiving and dispatch of materials and the inspection of packages for damage.
- Packages shall be inspected regularly to ensure their integrity. Leaking or damaged packages shall be removed to a safe area for repacking or disposal. Labels shall be reattached or replaced as necessary, to clearly identify the contents of the package.
- Procedures shall be established to deal with clean up and safe disposal of spillages. Supplies and materials needed to control the spillages shall be readily accessible.



- Substances which are temperature sensitive shall be kept in a controlled environment set to maintain an appropriate temperature range. Reliable alternative safety measures shall be provided for situations when utilities (such as power) fail. Substances that can present additional hazards on heating shall be clearly identified.
- Sunlight can affect some plastic containers or the chemical contents. Such containers or chemicals must not be stored where they can be exposed to direct sunlight. If the stability of the chemical can be affected, procedures shall be in place to ensure the chemical is assessed prior to use.
- Substances subject to additional regulation may stipulate additional storage requirements.
- Store heavy containers or packages of chemicals between knee and shoulder height;

10.3 Segregation & Incompatibility of Chemicals

When storing chemicals, the storage compatibility of chemicals needs to be considered. Chemicals that need to be isolated or separated by sufficient distance to eliminate the risk of fire, explosion, or accumulation of toxic gases or vapours, from a leak or spillage etc shall be appropriately segregated. The principal source of guidance regarding conditions for safe storage and compatibility is the SDS. Table 4 provides some guidance as to compatibility between the classes of dangerous goods.

ChemAlert also has an incompatibility reporting function that assists in the identification of incompatible chemicals based on DG class. Additional chemical specific incompatibilities will also need to be considered.



Table 4: Guidance to compatibility between classes of dangerous goods

Class / Division		2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	8	9
2.1	Flammable Gas	A	E	C	B	B	D	B	D	D	C	B	B
2.2	Non-flammable non-toxic gas	E	A	B	E	E	E	E	B	E	B	B	B
2.3	Toxic Gas	C	B	A	C	C	C	C	C	C	B	B	B
3	Flammable liquid	B	E	C	A	B	D	B	D	D	C	B	B
4.1	Flammable solid	B	E	C	B	A	D	B	D	D	C	B	B
4.2	Spontaneously combustible	D	E	C	D	D	A	B	D	D	C	B	B
4.3	Dangerous when wet	B	E	C	B	B	B	A	D	D	C	D	B
5.1	Oxidizing agent	D	B	C	D	D	D	D	A	D	F	D	F
5.2	Organic peroxide	D	E	C	D	D	D	D	D	G	F	D	F
6.1	Toxic	C	B	B	C	C	C	C	F	F	A	B	B
8	Corrosive	B	B	B	B	B	B	D	D	D	B	G	B
9	Miscellaneous dangerous goods	B	B	B	B	B	B	B	F	F	B	B	A

Note: In this table, combustible liquids should be included with Class 3.

- A - Most dangerous goods of the same class have similar primary hazards and are usually considered to be compatible.
- B - With a few exceptions, which should be indicated on the SDS, goods of these two classes are usually non-reactive with each other. However, in an emergency such as a spill, leak or fire, the presence of the second class may lead to different hazards or increased risk such that additional control measures are required.
- C - While goods of these two classes are usually non-reactive with each other, a fire involving the fire risk goods may lead to the release of large clouds of toxic gases or vapours.
- D - Goods of these two classes are likely to interact with each other in such a way as to significantly increase risk. In some cases, interaction may result in fire or evolution of toxic vapours. For those that do not interact, a fire involving one may be violently accelerated by the presence of the other. These classes should not be kept in the same area unless it can be demonstrated that the risks are fully controlled.
- E - If the Division 2.2 has a Subsidiary Risk 5.1, then this is D, otherwise it is B.
- F - If the Division 6.1 or 9 is a fire risk substance, then this is D, otherwise it is B.
- G - If one material is a concentrated, strong acid and the other is a concentrated, strong alkali, then this is D, otherwise it is A.



10.4 Decanting

Where reasonably practicable, chemicals shall be kept in their original container with the original labelling from the manufacturer/supplier. Where chemicals are decanted, the new containers are required to be appropriate for the chemical they will hold and be correctly labelled (see section 9.7.3).

Decanting chemicals in explosive atmospheres (or chemicals that may produce explosive atmospheres) require special arrangements that will not produce static electricity (e.g. fume cupboards, earthing equipment, non-synthetic protective garments). Decanting **shall not** be performed in chemical stores unless the stores have been specifically designed for decanting.

Particular attention is required to be given to decanting chemicals that pose unique hazards such as:

- Solvents which can create explosive atmospheres.
- Asphyxiants; and
- Chemicals that are toxic by inhalation.

10.5 Storage of Time Sensitive Chemicals

Time Sensitive Chemicals degrade over time and develop additional hazards if not correctly maintained. These hazards have the potential to cause significant injury to personnel and damage to surrounding infrastructure. A considerable number of chemicals stored and handled by Curtin are classified as time sensitive, this number includes both pure chemicals and mixtures.

All staff and students who handle or store chemicals are required to be made aware of the risks posed by time sensitive chemicals. Examples of time sensitive chemicals are isopropyl alcohol (2-propanol), diethyl ether, tetrahydrofuran (THF), Chloroform, Picric Acid, Formic Acid and over 200 others.

The effective management of Time Sensitive Chemicals is required to include chemical labelling and marking, tracking, inspection, and chemical specific hazard management.

No time sensitive chemical is permitted to be stored for longer than 5 years at any Curtin site.

DANGER!

Do not handle containers of Time-Sensitive Chemicals that show signs of instability or inappropriate management, such as:

- | | |
|--|---|
| ! Lacking an inspection record | ! A cloudy appearance |
| ! Age unknown, or age in excess of safe storage time | ! Crystals are present in the liquid (peroxide forming chemicals) ‡ |
| ! Lacking a record of venting (Formic Acid) | ! Liquid stratification |
| ! "Explosive when dry" chemicals which appear dry | ! Crystals are present on the inside of the container‡ |
| ! Crystals are present around or underneath the cap (a "mossy" appearance) | ! Discoloration of liquids |

* **Caution:** the liquid's colour may not be visible in amber or opaque containers.

‡ Fine crystals may be difficult to observe, the use of a strong flashlight is recommended.

If the above signs are observed you are required to immediately cordon off the area to prevent the chemical being disturbed, contact Health and Safety on 9266 4900 and your Technical Operations Manager.



For detailed guidance on the risks posed, management requirements, the warning signs of chemical instability and the efficient identification of Time Sensitive Chemicals in your stocks refer to the [Time Sensitive Chemicals Guideline](#).

Table 5: Guidance on Storage Limits of Some Common Time Sensitive Chemicals

Description	Storage Duration
Peroxide Forming Chemicals	From 24 hours to 18 months [‡]
Other Time Sensitive Chemicals, including:	18 months to 5 years [‡]
Chloroform;	
Formic Acid;	
Picric Acid;	
Other Explosive when Dry Chemicals	

[‡] For detailed advice refer to the tables contained in the [Time Sensitive Chemicals Guideline](#)

10.6 Chemical Storage in Laboratories

The quantities of hazardous chemicals stored in laboratories shall not exceed those specified in Table 6. Incompatible chemicals shall not be stored together unless correctly segregated (Table 4). Chemicals stored in a laboratory shall be located within a chemical storage cabinet and where possible this shall include the exempt volumes mentioned below when not in use.

Table 6: Quantities of hazardous chemicals permitted to be stored in a laboratory other than in a chemicals storage cabinet

Type of substance or Class of dangerous goods	Maximum per 50m ² (kg or L)	Maximum pack size (kg or L)	Conditions for storage
Class 3 primary or sub-risk	10	5	Labelled standard laboratory cupboard or in small amounts throughout the laboratory
Combustible liquids	50	20	Labelled standard laboratory cupboard or in small amounts throughout the laboratory
Classes 4.1, 4.2, 4.3, 5.1 or 5.2	20 total, but less than 10 of any one Class	10	Labelled standard laboratory cupboard or, for Classes 4.1, 4.3 and 5.1, in small amounts throughout the laboratory
Class 6.1	PG I 10 Other 50	PG I 10 Other 20	Labelled standard laboratory cupboard or in small amounts throughout the laboratory
Class 8	20 for liquids 50 for solids	20	Labelled standard laboratory cupboard or in small amounts throughout the laboratory



Type of substance or Class of dangerous goods	Maximum per 50m ² (kg or L)	Maximum pack size (kg or L)	Conditions for storage
Class 9 and aerosols	50 for liquids 100 for solids	5 for liquids 20 for solids	Labelled standard laboratory cupboard or in small amounts throughout the laboratory
Maximum aggregate quantity	200		
Hazardous Substances		5 for liquids 20 for solids	Labelled standard laboratory cupboard or in small amounts throughout the laboratory

Taken from AS/NZS 2243.2: 2021. Please refer to the AS for more details and additional table notes.

Chemicals kept on shelves or racks shall be subject to the following restrictions:

- Shelving and its fixtures shall be compatible with the goods stored, or shall be suitably protected from the goods (NOTE: the use of particle board is not recommended as they may fail when subjected to moisture or chemicals)
- Chemicals shall not be stored higher than 1.5m from the floor and the maximum holding capacity of the shelving systems shall not be exceeded
- Shelves used for chemical storage shall be restrained against lateral movement and shall have lips on them to prevent containers being pushed through to the other side.

10.7 Chemicals Storage in Chemical Storage Cabinets

Chemical storage cabinets are the recommended method of storage for chemicals in the laboratory. They are mandatory where there is a specific requirement to hold quantities above those permitted in Table 6 within the laboratory. Chemicals in quantities above those stated in Table 6 will be stored within a chemical storage cabinet.

The capacity of any chemical storage cabinet used in a laboratory to store chemicals of Classes 4.1, 4.2, 4.3, 5.1 or 5.2 shall not exceed 50 L. For Class 3 any chemical storage cabinet located under a bench shall not exceed 30 L in capacity. For other chemicals, the capacity shall not exceed 250 L.

Within a radius of 10 m, measured from any one cabinet, the cabinet storage capacity aggregated for all cabinets in that radius shall not exceed 250 L or 250 kg. Incompatible chemicals shall not be stored together. Separate chemical storage cabinets shall be used to maintain proper segregation.

Containers shall not be stored within the bund or lower floor of chemical cabinets.

Where necessary cabinets shall be vented to ensure that hazardous fumes/vapours do not build up within the cabinet.

Before obtaining a chemical cabinet confirm that a compliant location is ready. Refer to Health and Safety for advice.



10.8 Chemical Storage Using Refrigerators

Laboratory refrigerators that are used to store flammable solvents or other volatile chemicals may accumulate flammable or explosive atmospheres inside the unit. Under these conditions ignition sources from the refrigerator may cause an explosion. AS 2243.2 Section 4.4.3 (c) states:

- A refrigerator may be used to store flammable chemicals provided it has been designed and manufactured to eliminate ignition sources. Solvents stored in suitable refrigerators shall be properly labelled and sealed. A complete check of the condition of the refrigerator contents shall be carried out at intervals described in a risk assessment.

11. TRANSPORTATION OF CHEMICALS

11.1 General transport around campus

Chemicals shall be purchased in quantities to be used at that time and not be stored for long periods of time. Where a chemical is required in more than one location, it shall be purchased in multiple small quantities and the chemical shall be delivered and stored at each location where it is required. Where transport of chemical, samples and/or gases is deemed essential, a risk assessment of the transportation is required to be undertaken and approved prior to the transport.

Transportation of chemicals during relocation of research from one facility to another shall be carried out by an external party (Curtin approved contractor) that is included as part of the relocation costs. The relocation contractor will be arranged by the local area, who must ensure that the contractor has completed the contractor prequalification and induction process.

11.2 Movement within a building /School area

The movement of chemicals within a building or school will be controlled and managed by the building manager, or technical operations manager/coordinator. For transportation to occur the following is required to be properly documented and approved:

- Risk assessment that includes the interaction of the incompatible chemical reactions
- Movement/traffic routes (starting point and finishing point)
- Time of movement
- Suitable storage location
- Package requirements
- Equipment requirements (i.e. trollies)
- Adherence to SDS recommendations

11.3 Field investigations

Curtin does not permit the transport of dangerous goods as defined in the Australian Dangerous Goods Code Edition 7.8. by Curtin workers or students. All dangerous goods are required to be transported by specialist contractor; licenced to transport dangerous goods.

From time to time there may be a requirement to transport chemicals into the field. Any requirement for the transport of chemicals for field work should be identified at the start of a project as part of the risk assessment documentation. All appropriate documentation identified in Section 7.6 of the Chemical Management Plan is required to be developed and approved prior to going to site.



In addition to the above documentation, any requirements of the Department of Energy, Mines, Industry Regulation and Safety (DMIRS) or those presented in the Australian Dangerous Goods Code Edition 7.8 for small quantities and the SDS, are required to be adhered to.

12. CHEMICAL WASTE AND DISPOSAL

12.1 Introduction

Chemical waste and its disposal are controlled by the Environmental Protection Act 1986 and the Environmental Protection (Controlled Waste) Regulations 2004 in order to protect the environment. For the purposes of this section, chemical waste is defined as any chemical whether solid, liquid, gases that is discharged, emitted or deposited in the environment in such volume, constituent or manner as to cause an alteration in the environment.

Chemical waste includes any otherwise discarded, rejected, unwanted, surplus or abandoned chemical whether intended for sale or any further use (including recycling) regardless of value.

The list of controlled waste is located in Schedule 1 of the [Environmental Protection \(Controlled Waste\) Regulations 2004](#).

Where practicable, chemical waste shall be reduced to lower the impact on the environment. For example, a trained person could neutralise unwanted hydrochloric acid by adding sodium bi-carbonate. This reduces the impact on the environment as transport of the waste would be eliminated. Please refer to the local area waste procedures and Water Corporation's [Trade Waste guidance](#).

12.2 Responsibilities

Heads of Schools/areas are responsible for ensuring that there is sufficient waste management process in place. Managers/supervisors are required to ensure, so far as is reasonably practicable, that chemicals are acquired in minimum quantities that mitigate or reduce waste. Chemical waste remains the responsibility of the purchaser or producer until the point of its authorised discharge or disposal.

Chemical waste shall not be permitted to accumulate and is required to only be mixed with compatible waste. Personal protective equipment shall be used when handling chemical waste as recommended in the SDS and risk assessment.

12.3 Chemical Waste Disposal

Chemical waste is required to be correctly handled, stored and labelled to reduce the risk of spillage and unintended reactions.

Curtin arranges for a licenced contractor to collect chemical waste regularly, please refer to the Health and Safety [website](#) for collection details. If individual areas require waste collection more frequently, the area shall arrange additional waste collections directly with the waste contractor as often as required. Chemical disposal contractors will issue a receipt outlining the waste collected, that is required to be kept as a record for 3 years.

12.4 Trade waste

Some Curtin facilities have Trade Waste Permits that allow for certain types of chemical waste that meet stipulated acceptance criteria to be discharged into the sewer system. However, chemical waste disposal by a licenced contractor (as described in section 12.3 of the Chemical Management Plan) is the preferred method of waste disposal.



12.5 Labelling Chemical Waste

Where waste is collected for disposal, it is required to be stored in a container that is fit for purpose and cleaned of spills on the outside. The label shall contain the following information:

- chemical name or mixture ingredients, waste category, waste type, UN No., class and HAZCHEM Code
- the statement “Chemical Waste For Disposal” on at least two sides of the container
- departmental/area name and phone number
- dangerous goods class label or GHS pictogram (if applicable)
- packing group
- volume of full container

12.6 Storage of Chemical Waste

Chemical waste is required to be stored appropriately (including segregation and bunding) so that the container/receptacle is impervious to rodents and insects and in such a way that it does not detrimentally affect the surrounding area by odour, visual pollution, air pollution, noise pollution and so on.

Chemical containers of some hazardous and/or dangerous goods may be classified as chemical wastes and require dedicated disposal. Check the SDS and the ChemAlert for information about individual chemicals. All chemicals and used spill kits shall be disposed of safely in accordance with the Safety Data Sheet and legislated requirements, by an Environmental Protection Authority (EPA) approved registered contractor.

12.7 Old or Obsolete Chemicals

Chemicals older than 5 years will be disposed of, unless appropriate justification can be made to keep it. The justification will need to include a current compliant SDS and approved risk assessment which includes an assessment of chemicals age, stability, container & label; and when the chemical will be disposed of.

Note: Refer also to *Section 10.5 – Time Sensitive Chemicals* where specific maximum storage timeframes are required due to risk, with none exceeding 5 years.

When you finish a project, leave a building/department or cease working at Curtin you are required to ensure that all chemicals, reagents and chemical samples are safely disposed of **before** you leave. Alternatively, they may be handed over to another person, within your research group and on the approval of your line manager. Check storage areas including fridges and freezers for any items that were your responsibility while at Curtin and arrange a chemical handover with your facility/technical manager. A [Hazardous Materials exit checklist](#) must be completed prior to leaving and signed off by the relevant delegates.

12.8 Contaminated items

Contaminated items such as:

- Empty chemical containers that have contained dangerous/hazardous goods, or may still contain residue;
- Contaminated equipment or PPE;
- Broken glassware; and
- Used spill kit items.



will be disposed of as laboratory waste through the Curtin approved clinical waste system and segregated where necessary from other types of controlled waste (i.e. biological waste to be autoclaved rather than incinerated.)

13 CHEMICAL SPILL OR GAS LEAK

13.1 General University Procedure

The Emergency Procedures provides guidance for all types of emergencies including chemical spills or gas leaks.

In a life-threatening situation call 0 000. If there is an incident that requires an emergency response call Curtin Safer Communities on ext 4444 and follow the procedures in the [Curtin Emergency Response Handbook](#). For laboratory specific emergency procedures refer to your local area procedures and contact your Technical Operations Manager/Co-ordinator or Facility Manager.

13.1.1 Hazardous Material Spill or Gas Leak

Unknown chemicals are to be treated as a poisonous material and **shall not** be cleaned up by Curtin workers or students.

Only trained workers are permitted to clean up known spills or releases.

Refer spill response section of the [Curtin Emergency Response Handbook](#).

13.2 Preparedness

Each workplace shall be prepared for a spill event. This will be different for each laboratory/workshop and it is the responsibility of the manager/supervisor to ensure appropriate preparedness is in place. All areas are required to have appropriate spill kits, cleaning facilities and PPE suitable for the chemicals held in the area.

Procedures for the handling and management of spills will be documented and approved. The procedures shall state any special requirements (i.e. additional storage of calcium gluconate where HF is being used, the use of CO₂ or appropriate foam fire extinguishers where DG4.3 are being stored).

13.3 Spill management and containment

To minimise risks and manage spills, the following will be undertaken/ made available:

- Curtin Emergency Procedures
- Spills management procedures & any laboratory specific emergency procedures
- Emergency and after hours manager/supervisor contact numbers
- Suitably trained first aider/s
- A current first aid kit that includes relevant antidotes and treatments. (e.g. calcium gluconate for Hydrofluoric acid or Medical Oxygen for cyanides).
- Suitable spill kits (readily accessible, checked and restocked on a regular basis and when used)
- Suitable PPE
- Unimpeded access (within 10 Seconds) to an eye wash station and emergency shower



- Facilities suitable for the intended activity (fit for purpose) which are regularly tested and maintained.
- Appropriately stored chemicals (including well-sealed containers, bunding trays, cabinets with inbuilt spill retention, and stores with bunding)

Chemical spill response preparedness must be practiced at regular intervals, with records of these drills retained, to ensure that response is appropriate and well managed.

13.4 Spill clean-up

Spill clean-up shall only be undertaken by suitably trained workers and students. Area specific Spill Response Procedures and the SDS shall be followed in the first instance. Where area specific procedures are not available the following general advice shall be followed:

1. assess the risk to yourself and others, based on the SDS
2. if safe to do so, contain the spill and clean up:
 - use the available spill kit to protect people and the environment
 - if appropriate dilute residue and wash down with water
 - install slippery floor signs if required
3. if the area is not safe, evacuate and secure the area
4. call for help from other trained personnel
5. if there are injuries or the spill is beyond the capabilities of local area personal, call Curtin Safer Communities on ext 4444
6. ensure any casualties are accounted for, apply first aid (this includes moving to emergency shower and eye wash) and move to a safer location
7. ensure the laboratory manager or supervisor has been informed of the incident
8. appropriately dispose of waste material and used spill kits items as chemical waste

13.5 Chemical incidents and spill reporting

All incidents and spills involving hazardous substances are required to be reported on the Curtin online reporting system. Investigation of these incidents and notification of external authorities will occur in line with the Curtin University Incident and Hazard Reporting and Investigation Procedures and by the relevant Curtin Compliance Officer.



14. EMERGENCY MANAGEMENT

14.1 Emergency Response

For life threatening emergencies call (0) 000.

If an incident requires an emergency response, call the Curtin Safer Community Team on 4444 who will assess the situation and escalate to the Critical Incident Management Team where appropriate.

14.2 Emergency Procedures

Area specific emergency procedures are required to be prepared in accordance with [the Curtin Emergency Management Plan](#), which incorporates AS 3745-2010 Planning for Emergencies in Facilities.

For general emergency planning and response enquiries, contact Emergency Management on ext 9910 or emergency_management@curtin.edu.au.

14.2.1 Risk Assessment for Emergency Planning

Risk Assessment for emergency planning should determine and consider:

- the physical properties of chemicals (including fire and explosion potential, environmental damage and the likely health effects if exposure occurs)
- specific first aid requirements that may be required for some chemicals (e.g. cyanide requires administration of oxygen, HF contact with skin requires application of calcium gluconate)
- appropriately trained first aiders (including their location and contact details)
- spill kits appropriate for the physical properties of the chemical
- additional equipment to mitigate or reduce environmental impact (spills should be contained wherever possible, and floor drains and sinks should be isolated)
- firefighting medium appropriate for the physical properties of the chemical
- location and access to emergency showers and emergency eyewash stations
- consideration of the need for environmental monitoring devices
- consideration of the need for Self-Contained Breathing Apparatus; and
- the management procedures of spills and leaks
- shutdown procedures
- supporting Curtin University emergency procedures



14.2.2 Local Area Emergency Procedures

The local area emergency procedures shall be documented prior to the commencement of a process. The manager/supervisor of an area or laboratory are required to ensure that local emergency procedures are developed to guide response to chemical hazards particular to the area.

Up to date chemical register information is vital in responding to chemical incidents, it is the responsibility of each School to update ChemAlert locations with new chemicals when they are purchased, used or disposed.

These emergency procedures should take the following into account, when developing the risk assessment:

- the physical properties of the chemical/s including: fire and explosion, environmental damage and the likely health impacts. This information will be provided on the SDS
- the full life-cycle and intended use of the chemical from delivery/receipt through to waste collection.
- equipment or infrastructure available in the area that will aid in the detection of or response to an incident
- the safe management of spills and leaks
- reference to any supporting Curtin University emergency management plans and associated procedures

14.3 Dangerous Goods Manifest and Site Plans

Sites holding a Dangerous Goods License will keep a copy of the Manifest and Site Plan at the Fire Indicator Panel (FIP). A backup copy of the Dangerous Goods Manifest and Site Plans will also be located in the Curtin Safer Communities Control Room.

The manifest is revised and updated when:

- There is a change in any of the information
- There is a change in the relevant legislation

15. INCIDENT REPORTING

15.1 Loss/Theft or suspicious behaviour

The university and some individual workers are empowered by licence or campus permit to possess certain drugs or other controlled substances. To avoid misuse, diversion for illicit trafficking or conversion to other drugs for misuse, workplaces are to ensure suitable security, storage, record-keeping and general control in accordance with the requirements of the permit conditions and relevant legislation.

In addition to reporting any incidents involving chemicals (see section 14), all incidents in which there are reasonable grounds to suspect:

- theft: a theft or loss of a chemical, drug, or prohibited substance;
- unaccounted loss: a quantity of chemicals, drugs or prohibited substances that cannot be reasonably accounted for; or
- suspicious behaviour: A worker who has access to chemicals, drugs or prohibited substances exhibits such behaviour that you or others reasonably suspect that the person may be abusing or diverting drugs or other chemical substances are required to be reported to your local area manager and your Head of School. Any breaches should be reported on CHARM.



16. RECORDS

The following documents are required to be kept for the period specified (in accordance with the relevant regulations).

1. Risk assessments that identify a hazard or significant degree of risk to health are to be kept for 30 years. Monitoring results and health surveillance reports are required to also be kept for 30 years (asbestos monitoring must be kept for 40 years);
2. risk assessments identifying no hazards/significant degree of risk to health are required to be kept for 5 years;
3. training records are to be kept for at least 5 years;
4. tank inspection records are to be kept while the tank remains in service;
5. incident investigations involving material harm are required to be kept for the life of the facility
6. certificates of disposal are required to be kept in accordance with the Site Environmental Licence and the Environmental Protection (Controlled Waste) Regulations 2004.

17. NANOMATERIALS

17.1 Terminology

Nano-objects are defined as materials with one (nanoplate), two (nanorod) or three (nanoparticle) external dimensions in the nanoscale (i.e. between approximately 1 and 100 nm). Nano-objects can form agglomerates and aggregates. For the purpose of this document, the term nanomaterials shall apply as a collective for to the above materials.

17.2 Legislation

There is currently no WA legislation dealing specifically with nanomaterials. However, legislation covering chemicals is applicable to nanomaterials. In WA, nanomaterials are covered under the Work Health and Safety Act & Regulations as part of the regulations that cover hazardous substances/chemicals.

17.3 Types of Engineered Nanomaterials

While some occur naturally, many nanomaterials are engineered with specific properties in mind. Table 7 provides details on some of the more common types of engineered nanomaterials that may apply

Table 6: Common types of engineered nanomaterials

Type	Description	Characteristics
Fullerenes	Fullerenes comprise one of four types of naturally-occurring forms of carbon. Their molecules are composed entirely of carbon and take the form of a hollow sphere. One of the most commonly described fullerenes is C60, known as a Buckminster fullerene or a buckyball. Fullerenes are chemically stable materials and insoluble in aqueous solutions. Potential applications include drug delivery, coatings and hydrogen storage.	carbon-only molecules (hollow sphere, ellipsoid, tube, or plane)
Carbon nanotubes	Carbon nanotubes (CNT) are allotropes of carbon with cylindrical structure, high-aspect ratio different tube diameters and lengths as well as tube structures principally	cylindrical fullerene (single or multi-



Type	Description	Characteristics
	consisting of one to many layers of tubular graphene-like sheets. The principal types are usually grouped into SW (single-walled), DW (double walled), and MW (multi-walled) CNT. Diameters may vary from around 1 nm for SWCNT to more than 100 nm for MWCNT. Their lengths can exceed several hundred μm . Commercial CNT can often contain a significant amount of other carbon allotropes and inorganic nanoparticle catalysts.	walled, capped or uncapped)
Nanowires	Nanowires are small conducting or semi-conducting nanofibers with a single crystal structure, a typical diameter of a few 10s of nm and a large aspect ratio. Various metals have been used to manufacture nanowires, including cobalt, gold and copper. Silicon nanowires have also been produced. Potential applications include inter-connectors in Nano-electronic devices, photovoltaics and sensors.	large aspect ratio
Quantum dots	Quantum dots are small (2 nm to 10 nm) assemblies of semiconductor materials with novel electronic, optical, magnetic and catalytic properties. Typically containing 1,000 to 100,000 atoms, quantum dots are considered to be something between an extended solid structure and a single molecular entity. Semiconductor quantum dots exhibit distinct photo-electronic properties which relate directly to their size. For example, by altering the particle size, the light emitted by the particle on excitation can be tuned to a specific desired wavelength. Applications include catalysis, medical imaging, optical devices and sensors.	semi-conducting crystal core (e.g. CdSe, CdS core, ZnS coat)
Metals and metal oxides, ceramics	This category includes a wide range of compact forms of nanoparticles, including ultrafine titanium dioxide and fumed silica. Such nanoparticles can be formed from many materials, including metals, oxides and ceramics. Although the primary particles have compact form, these materials are often available only in agglomerated or aggregated form. They can be composites having, for example, a metal core with an oxide shell, or alloys in which mixtures of metals are present. This group of nanoparticles is generally less well defined in terms of size and shape, and likely to be produced in larger bulk quantities than other forms of nanoparticles. Applications include coatings and pigments, catalysis, personal care products, cosmetics and composites.	ultrafine powders (e.g. Ag, Au, ZnO, TiO ₂ , CeO)
Carbon black	Carbon black is virtually pure elemental carbon in the form of particles that are produced by incomplete combustion or thermal decomposition of gaseous or liquid hydrocarbons under controlled conditions. Its physical appearance is that of a black, finely divided powder or pellet. Its use in tyres, rubber and plastic products, printing inks and coatings is related to properties of specific surface area, particle size and structure, conductivity and colour. The primary particle size of carbon black is most commonly less than 100 nm,	



Type	Description	Characteristics
	but commercial forms are aggregated, typically with dimensions greater than 100 nm. Carbon black is one of the top 50 industrial chemicals manufactured worldwide, based on annual tonnage.	
Dendrimers	Dendrimers are polymer particles in which the atoms are arranged in a branching structure, usually symmetrically about a core. Dendrimers are typically monodispersed with a large number of functionalisable peripheral groups. They are currently being evaluated as drug delivery vehicles.	
Nanoclays	Nanoclays are ceramic nanoparticles of layered mineral silicates. Nanoclays can be naturally occurring or engineered to have specific properties. Naturally occurring forms include several classes such as: montmorillonite, bentonite, kaolinite, hectorite, and halloysite. Nanoclays also include organo-clays, i.e. clays that have been subjected to cat-ion exchange, typically with large organic molecules, which partially or completely de-laminates the primary sheets.	

17.4 Potential Hazards

Nanomaterials are generally considered more hazardous than their larger form counterparts because of the potential for nanomaterials to express property changes such as increased flammability and reactivity, from their larger counterparts and the potential of some nanomaterials to form explosive dust clouds. In addition, increased particle number and combined surface area, other particle characteristics may influence the biological response, including solubility, shape, charge and surface chemistry, catalytic properties, adsorbed pollutants (e.g. heavy metals or endotoxins), as well as degree of agglomeration. These shall be considered as part of the planning and risk assessment of work involving nanomaterials.

17.5 SDS and Control Banding for Risk Assessment.

Nanotechnology is an emerging field and SDSs for nanomaterials may not adequately cover all the hazards of these materials. Research has shown that existing controls utilised for dusty processes are effective controls for use with nanomaterials. A principle of control banding has been developed, which is based on an evaluation of the known health risks of the nanomaterial product and the potential exposure to identify an appropriate control band. When undertaking a risk assessment for work involving nanomaterials, specialist advice may be required to identify the appropriate control band.

Conceptually, the five control band levels detailed in the ISO Standard consist of:

- CB 1: Natural or mechanical general ventilation
- CB 2: Local ventilation: extractor hood, slot hood, arm hood, table hood, etc.
- CB 3: Enclosed ventilation: ventilated booth, fume hood, closed reactor with regular opening
- CB 4: Full containment: glove box/bags, continuously closed systems
- CB 5: Full containment and review by a specialist: seek expert advice



17.6 Labelling

Manufacturers/importers have a duty to correctly classify chemicals and include information on known hazards on the label in accordance with Work Health & Safety Regulations.

Where the hazards associated with engineered nanoparticles have not been fully characterised the manufacturer/supplier should include an interim statement on the label such as:

- contains engineered/manufactured nanomaterials. Caution: Hazards unknown; or
- contains engineered/manufactured nanomaterials. Caution: Hazards not fully characterised.

Where engineered nanomaterials are labelled with the above phrases, they should be included on the label of any container to which the nanomaterial is decanted.

17.7 Spills

Methods to control spills and accidental release of nanomaterials should be identified in pre-planning activities. Consideration must be given to the use of wet wipe cleaning methods, barriers to minimise air currents across areas affected by a spillage; and tested and certified HEPA filters, for dry materials or dried spills. Processes which have the potential to create dust shall be avoided.

17.8 Nano waste Management

The properties of a nanomaterial are required to be considered when determining the appropriate method of waste disposal. Consideration shall be given to the following characteristics:

- type of nanomaterial or nano-product from which nanowaste is derived can effect waste characteristics. These characteristics include Flammability, Corrosivity, Reactivity, Toxicity, Physical form (e.g. material size can effect waste characteristics)
- the sources of nanomaterial waste may include the Manufactured Nanomaterials themselves (e.g. Carbon Nanotubes), Nano By-products - organic or inorganic, Liquid Suspensions Containing Nanomaterials, Items Contaminated with Nanomaterials (e.g. Wipes/PPE), the waste of animals to which nanomaterials have been administered, Solid matrices with Nanomaterials

Waste containing nanomaterials require separation from other waste streams. It must be:

- bagged and sealed
- labelled as per clinical waste protocols and ADG Code
- stored on site and be recycled where possible

Currently, disposal of waste via incineration plants must be avoided where little is known about the behaviour or there are high concentrations of nanoparticles.



18. SECURITY RISK SUBSTANCES (SRS)

18.1 Ammonium Nitrate

Security Risk Substances are dangerous goods of particular security concern because their misuse may lead to mass casualties and/or destruction.

Western Australia has developed dedicated regulations for SRS under the Dangerous Goods Safety Act. The requirements of the SRS Regulations are **in addition** to the requirements of the other dangerous goods safety regulations and any other legislation that may apply.

Ammonium nitrate, ammonium nitrate emulsions and ammonium nitrate mixtures containing greater than 45% (by mass) ammonium nitrate (excluding solutions and ammonium nitrate products classified as class 1 explosives) will collectively be referred to as Security Sensitive Ammonium Nitrate (SSAN).

18.2 Licencing and Exemption Quantities

The manufacture, import, export, supply, transport, possession, access or use of SRS requires a licence, issued by the Department of Energy, Mines, Industry Regulation and Safety (DMIRS).

An exemption to the licencing requirements for the possession of SRS exists for educational institutions (workers & students of educational institutions). This **exemption is conditional** on legitimate research, teaching or analysis requirement for the SRS that does not involve the manufacture of an illegal product. A limit of 3kg of SRS held in any laboratory/building is a condition of this exemption. SRS quantities are to be recorded and managed on ChemAlert.

For holdings of SRS over 3kg at any site (building), a license is required and must be organised **prior to** exceeding the allowable 3kg limit. Contact the Director of Health and Safety on ext. 4900 to discuss the requirement for a licence.

SRS's are considered to be a Chemical of Security Concern. Please see section 19 for recommendations on the management of Chemical of Security Concern.



19. CHEMICALS OF SECURITY CONCERN

19.1 Introduction

The Council of Australian Governments (COAG) have identified 96 chemicals as chemicals security concern, due to their potential to produce explosive or toxic weapons.

A voluntary National Code of Practice for Chemicals of Security Concern applies to 11 of the 96 Chemicals of Security Concern that are precursors to homemade explosives. The code should be applied to the additional 84 toxic chemicals of security concern as security risk management is part of good business practise. The other Chemical of Security Concern is Ammonium Nitrate as covered by the Dangerous Goods Safety (Security Risk Substance) regulations 2007 (see Section 18). The National Code of Practice for Chemicals of Security Concern outlines measures to increase responsibility, security, monitoring of inventory and the reporting of suspicious behaviour.

19.2 Chemicals covered by the code

Table 7: Chemical covered by the National Code of Practice for Chemicals of Security Concern.

Chemicals of Security Concern	
Security Risk Substances Ammonium Nitrate (Section 18)	> 45% Ammonium Nitrate, which is not an explosive or an aqueous solution consisting of a homogeneous mixture of 2 or more components in a single phase.
11 precursor chemicals	
Ammonium perchlorate	≥ 65% or pure aqueous solution ≥ 10%
Hydrogen peroxide	All pure aqueous solutions, mixtures with other chemicals ≥15%
Nitric acid	≥ 30%
Nitromethane	≥ 10%
Potassium chlorate	≥ 10%
Potassium nitrate	≥ 65% or pure aqueous solution ≥ 10%
Potassium perchlorate	≥ 65% or pure aqueous solution ≥ 10%
Sodium azide	≥ 65% or pure aqueous solution ≥ 10%
Sodium chlorate	≥ 95%
Sodium nitrate	≥ 65% or pure aqueous solution ≥ 10%
Sodium perchlorate	≥ 65% or pure aqueous solution ≥ 10%
	≥ 65% or pure aqueous solution ≥ 10%



84 toxic chemicals Aldicarb Aluminium phosphide Ammonia (anhydrous) Arsenic pentoxide Arsenic trioxide Arsine Azinphos methyl Bendiocarb Beryllium sulfate Bromine Cadusafos Calcium cyanide Carbofuran Carbon disulphide Carbon monoxide Chloropicrin Chlorfenvinphos Chlorine Cyanogen bromide Cyanogen chloride Diazinon Dichlorvos Diethyl phosphite Dimethyl phosphite Dimethyl mercury Dimethyl sulfate Disulfoton	Endosulfan Ethion Ethyl mercury chloride Ethyl-diethanolamine Hydrochloric acid Hydrogen chloride Hydrogen cyanide Hydrogen sulphide Magnesium phosphide Mercuric chloride Mercuric nitrate Mercuric oxide Mercurous nitrate Mercury cyanide Methamidophos Methidathion Methiocarb Methomyl Methyl fluoroacetate Methyldiethanolamine Mevinphos Nitric oxide Omethoate Osmium tetroxide Oxamyl Paraquat Parathion methyl	Perchloric acid Phorate Phosgene Phosphine Phosphorus Phosphorus oxychloride Phosphorus pentachloride Phosphorus trichloride Potassium cyanide Propoxur Sodium cyanide Sodium fluoroacetate Strychnine Sulfur dichloride Sulfur monochloride Sulphuric acid Terbufos Thallium sulfate Thionyl chloride Thiophosphoryl chloride Triethanolamine Triethyl phosphite Trimethyl phosphite Zinc cyanide Zinc phosphide
--	--	---

19.3 Application of the Code in Universities

A National Code of Practice for Chemicals of Security Concern has been developed. The guidance outlines advice for implementing the code in laboratory-based workplaces. The advice is separated into 3 sections. The importance of the National Code of Practice for Chemicals of Security Concern and the controls in place shall form part of your training & induction program.

1. The overarching responsibility for integrating the Code of Practice for Chemicals of Security Concern rests with the Head of Area. As part of organisational risk assessments, the assessment of security risk and implementation of security measures shall be implemented by manager/supervisors of areas and workers who order chemicals. Reporting suspicious behaviour and incidents related to chemicals of security concern to your local area manager and your Head of School. Any breaches should be reported on CHARM.
2. Managers/supervisors shall implement the Code of Practice through a risk assessment that includes relevant controls such as reviewing security measures, ensuring that chemicals are stored in a secured area, restricting access arrangements to those who have a legitimate need, maintaining an accurate inventory, being familiar with the chemicals and volumes being used by students and technicians & limiting the number of people authorised to purchase chemicals.
3. Accurate auditing processes that shall be used with chemicals of security concern include reviewing inventory recording systems to enable regular interactive and accurate monitoring, appointing people with appropriate responsibility to regularly reconcile inventory and report any unexplained discrepancies.



19.4 Reporting

Report any suspicious activity or unexplained discrepancies on CHARM

POISONS

20.1 Scheduled Poisons, Medicines and Drugs

The [Medicines and Poisons Act 2014](#) (the Act) regulates and controls the possession, sale and use of poisons, medicines and drugs to protect the public from harm associated with the misuse of these substances.

Poisons, medicines and drugs are classified into Schedules (listed below). Many poisons by their nature are also hazardous or dangerous and as such the requirements of the Act are in addition to those of other applicable legislation unless specifically stated. The Schedules of a poison can also be found on the SDS, where available.

20.2 Definition of Schedules

The Schedules as defined in the Medicines and Poisons Act 2014 are:

- **Schedule 1**, currently not used
- **Schedule 2**, Pharmacy Medicines
- **Schedule 3**, Pharmacist Only Medicines
- **Schedule 4**, Prescription Only Medicine or Prescription Animal Remedy
- **Schedule 5**, Caution
- **Schedule 6**, Poison
- **Schedule 7**, Dangerous Poison
- **Schedule 8**, Controlled Drug
- **Schedule 9**, Prohibited Substance
- **Further information is available in the [Act](#)**

20.3 Poisons Permit

To purchase, use and hold poisons in schedules 2, 3, 4, 7, 8, or 9, Curtin staff are required to hold an appropriate permit for either research, educational, or industrial purposes. The purchase, use or holding of Schedule 5 and 6 Poisons do not require a permit.

The permit is required to be held by a person with sufficient education or experience in the handling of Poisons. Permit holders are responsible for ensuring that all permit conditions are met.

Permits are only valid for the named poisons/schedules and locations. Manufacture, distribution, sale or supply of Scheduled Poisons is prohibited under these permits.

Permits may outline additional conditions for use, storage, and record keeping and detail any limitations on the size or quantity allowed under the permit. Poisons covered under a Poisons Permit cannot be used for purposes other than those for which the permit has been granted.



Contact Health and Safety before applying for a new Poisons Permit or the amendment of an existing poisons permit.

The use of scheduled poisons in human or animal research require approval by the Curtin ethics committee.

20.4 Purchase

An authorised permit is required to purchase scheduled poisons. Permits are required to list the chemicals being used on the permit or list the relevant schedule for them to be compliant. Suppliers are required to ensure the appropriate permit is held prior to the supply of scheduled poisons.

All purchases of Scheduled poisons are required to follow [Curtin's chemical pre-purchasing checklist](#). The purchase can only be made by the Permit holder.

20.5 Storage & Access Arrangements

All Scheduled Poisons are required to be stored securely as per the requirements of the [Medicines and Poisons Regulations 2016](#). Additional conditions for storage may be stipulated in Individual Permit conditions.

Where a Scheduled poison requiring a permit is also a dangerous good, it is required to be stored securely in addition to any Dangerous Goods storage requirements.

20.6 Record Keeping Poisons

Scheduled poisons require purchase and usage records to be kept in accordance with the [Medicines and Poisons Regulations 2016](#). The records should be detailed enough so that discrepancy of use, lost or stolen poisons would be reasonably detected.

Schedule 8 and 9 poisons require records of purchase, usage and destruction to be kept in a dedicated record book obtained from the supplier. Inventory records are required to be entered at least monthly.

20.7 Labelling

Schedule poisons must not be stored, supplied or transported unless the container bears or has a securely fixed label which complies with [The Poisons Standard](#).

20.8 Disposal

A poison included in Schedule 5, 6 or 7 must not be disposed of in any place or manner that constitutes or is likely to constitute a risk to public health or safety. A poison included in schedule 8 or 9 is required to be destroyed in accordance with the Medicines and Poisons Regulations 2016.



21. CONCESSIONAL SPIRITS

Undenatured ethanol (alcohol) can attract an excise under the Excise Act.

Curtin University currently has an exemption from the excise due to the volume of ethanol use, although records are required to be maintained for a minimum of 5 years. The records are required to include:

- Amount of ethanol held
- Amount of ethanol obtained
- Date the ethanol was obtained
- Name of supplier; and
- Purposes for which the ethanol is used
- More information on concessional spirits is available from the [Australian Taxation Office website](#)

22. HEALTH SURVEILLANCE

Where it is identified that there is a significant risk of exposure to a hazardous substance as identified within the Work Health and Safety Regulations (General) 2022 there is a requirement that the work area arrange health surveillance. Health surveillance will be managed in accordance with the [WorkSafe Health Monitoring Guidelines](#).

23. SCHEDULED CARCINOGENS

23.1 Chemical Carcinogens

Carcinogenic chemicals are hazardous substances that may cause cancer. Three schedules of carcinogenic chemicals have been declared under the Work Health and Safety Regulations 2022. If the use of a scheduled carcinogen is required, contact Health and Safety for information.

The scheduled substances below are not an exhaustive list of carcinogens. If a chemical is classified as carcinogenic, a thorough risk assessment shall be performed.

The listed carcinogenic substances are subject to the scheduled restrictions as a pure substance; or in a mixture containing 0.1% or more of that substance determined as a weight/weight (w/w) concentration for solids or liquids, or a volume/volume (v/v) concentration for gases. They require the approval of the Commissioner of WorkSafe WA before they can be used.

23.2 Carcinogenic substances only to be used for bona fide research

The listed Schedule 10 substances have been identified as Carcinogenic substances to be used only for bona fide research under the Work health and Safety Regulations 2022. The Commissioner is required to be notified of the intention to use a Schedule 10 carcinogenic substance in the workplace **prior to the commencement of work**.



Schedule 10 Table 10.1 Prohibited Carcinogens

- 2-Acetylaminofluorene
- Aflatoxins
- 4-Aminodiphenyl
- Benzidine and its salts
- Bis(chloromethyl) ether
- Chloromethyl methyl ether (technical grade)
- 4-Diaminoazobenzene
- 2-Naphthylamine and its salts
- 4-Nitrodiphenyl

23.3 Carcinogenic substances only to be used for purposes approved by the Commissioner

The listed Schedule 10 Table 10.2 substances have been identified as requiring approval by the Commissioner of WorkSafe under the Work Health and Safety Regulations 2022. This approval is required to be obtained **prior to the commencement of work**.

Schedule 10 Table 10.2 Restricted Carcinogens

- Acrylonitrile
- Benzene (when used as a feedstock and containing more than 50% benzene by volume)
- Cyclophosphamide [(a cytotoxic drug) when used in preparation for therapeutic use in hospitals and oncology treatment facilities and in manufacturing operations]
- 3,3-Dichlorobenzidine and its salts (including 3,3-dichlorobenzidine dichloride)
- Diethyl sulphate
- Dimethyl sulphate
- Ethylene dibromide (when used as a fumigant)
- 4-4'-Methylene bis(2-chloroaniline) – (MOCA)
- Beta-Propiolactone (2-propiolactone)
- O-Toluidine and O-Toluidine hydrochloride
- Vinyl Chloride Monomer

23.4 Carcinogenic substances – Asbestos and respirable silica

Genuine research with asbestos or asbestos containing materials (ACM) is permissible. A risk assessment, training and health monitoring is required. All samples suspected of containing asbestos will be tested by a NATA accredited laboratory or a laboratory approved or operated by the regulator. Where asbestos or ACM is present, the use of High-pressure water spray, compressed air, power tools, brooms or other implements that cause the release of airborne asbestos is prohibited.

Respirable silica refers to silica of 10 micron or less. Any research involving the generation of silica dust, must be risk assessed to reduce the generation of dust and will consider health monitoring requirement.



23.5 Access, Health Surveillance & Records

Access to scheduled carcinogens shall be restricted to workers or students who:

- work directly with the scheduled carcinogens
- have received chemical training; and
- have been fully briefed on a risk assessment addressing the handling of the carcinogen
- restricted areas should display appropriate signage (check SDS)

Health surveillance is required for scheduled carcinogens and an SDS will provide some initial advice on the types and frequency of health tests required. Health Surveillance will be managed in accordance with the [WorkSafe Health Monitoring Guidelines](#).

Records are required to be maintained and kept for each person who works with a scheduled carcinogenic substance. The records are required to contain:

- the person's full name
- the person's date of birth
- the person's residential address during the period that the person worked with the scheduled carcinogenic substance
- the name of each scheduled carcinogenic substance that the person worked with; and
- the period of time over which the person worked with each of the scheduled carcinogenic substances. A written copy outlining the above details are required to be given to each person who works with a scheduled carcinogenic substance on leaving Curtin

24. AGRICULTURAL AND VETERINARY CHEMICALS

24.1 Introduction

In addition to the general chemical management requirements, there are additional legislative requirements for agricultural and veterinary chemicals under the Agricultural and Veterinary Chemicals Act 1995 & Regulations 1995. In WA this is controlled by the Department of Primary Industries and Regional Development and the Department of Health WA.

All agricultural and veterinary products or their active constituents sold in Australia are required to be registered by the Australian Pesticides and Veterinary Medicines Authority (APVMA). APVMA provides approval for a product, for the purpose and use as stated on the label.

24.2 Purchase

All chemical purchases require a [Chemical or Gas Pre-purchase Checklist](#) to be completed. Due to the nature of the products, many agricultural & veterinary products are also scheduled poisons. Please refer to (section 20) for more information about the requirements for poisons.

24.3 APVMA Research Permits for off label use

Use of an agricultural or veterinary chemical other than as directed by the label is termed 'off label' use and requires an APVMA research permit. A Public Chemical Registration Information System Search (PubCRIS) is maintained on the [APVMA website](#). Contact Health and Safety if you require a permit.



24.4 Usage Restrictions for Agricultural or Veterinary purposes.

There are controls on the use of agricultural & veterinary chemicals for Agricultural and Veterinary practices to protect people, animals, crops, and the environment. They cover aspects such as spray drift, overuse and maximum residue levels and withholding periods for agricultural produce. If an agricultural & veterinary chemical is required for research into agricultural or veterinary practices or produce, additional licensing or permit requirements may apply.

Permits to use agricultural chemicals including herbicides, fungicides, baits and poisons, and insecticides are regulated by the [Department of Primary Industries and Regional Development](#) (DPIRD) and the [Department of Health WA](#) in conjunction with [Australian Pesticides and Veterinary Medicines Authority](#) (APVMA).

24.4.1 Veterinary Drugs and Poisons Permits

Veterinary practitioners are authorised to obtain, possess, use or supply most drugs and poisons for the lawful practice of their profession, i.e. for the veterinary treatment of animals under their care. You are required to provide proof that you are a registered veterinarian and that you hold the required poisons permits to purchase many veterinarian pharmaceuticals.

24.5 Labelling

Manufacturers are required to ensure that agricultural and veterinary chemicals have a label in English that complies with the requirements of the Australian Pesticides and Veterinary Medicines Authority and also includes the following:

- any hazard statement that is consistent with the correct classification of the chemical; and
- any precautionary statement that is consistent with the correct classification of the chemical.

24.6 Health Surveillance

The use of certain agricultural chemicals requires health surveillance. This is particularly relevant to pesticides that contain organophosphates and or benzenes. Health Surveillance shall be managed in accordance with the [Health Surveillance Guideline](#) by the manager/supervisor of the area.

25. ILLICIT DRUG PRECURSORS

25.1 Introduction

In addition to the general chemical management requirements, there are additional legislative requirements for precursor chemicals and ancillary equipment known to have been used for the manufacture of illicit drugs under the Misuse of Drugs Act 1981 & Regulations 1982.

Two categories of precursor substances and ancillary materials known to have been used in the manufacture of drugs are listed in the Misuse of Drugs Act 1981 & Regulations 1982. Tighter controls apply to Category 1 Items. Research & Education Institutions are exempt from some possession and supply restrictions, however purchase controls still apply.



25.2 Category 1 Items and purchase controls

Category 1 items (substances and things) are listed in Schedule 3 of the Misuse of Drugs Act Regulations 1982. Purchasers of Category 1 items are required to hold an account with the supplier, provide a written order for the item, complete an end user declaration and provide sufficient evidence of identity on order and receipt of the item. Suppliers do not supply a Category 1 item within 24 hours of ordering, during which time the supplier is required to provide a copy of the end user declaration to the Commissioner of Police.

Table 8: Category 1 items under the Misuse of Drugs Act Regulations 1982, Schedule 3.

Division 1 — Substances

Chemical name	Alternate name	Quantity substance in seized sample
Acetic anhydride		50 ml
Acetyl Chloride		50 ml
4-Amino-Butanoic acid	Piperidinic acid	
Bromobenzene	Phenylbromide	
Bromo safrole		
Boron tribromide		
1, 4-Butanediol	Tetramethylene Glycol	
1-Chlorophenyl-2-aminopropane		
L-Ephedrine (including salts)	Ethyl phenyl	37 g
Ethyl phenyl acetate	Benzene acetic acid, ethyl ester, methylbenzyl acetate	
Gamma butyrolactone		3.5 ml
Gamma hydroxybutanoic acid (including salts)	Gamma hydroxybutyric acid	
Hydroiodic acid	Hydrogen iodide	250 ml
4-Hydroxybutanal	4-Hydroxy butyraldehyde	
2-Hydroxytetrahydrofuran	Tetrahydro-2-furanol	
4-Hydroxy-butanoic acid lactone	Gamma-valerolactone	
4-Hydroxy-butanoic acid nitrile	4-Hydroxy butyronitrile	
4-Hydroxy pentanoic acid	Gamma Valerolactone	
Hypophosphorous acid	Phosphinic acid	39 ml
Iodine (including iodide salts)		30 g
Methcathinone	Ephedrone	
3, 4-Methylenedioxyphenylpropan-2-one		
N-Methyl ephedrine		



Chemical name	Alternate name	Quantity substance in seized sample
Methyl phenyl acetate	Benzeneacetic acid, Methyl ester, Benzyl Acetate	
N-Methylpseudoephedrine		
Norpseudoephedrine		
2-Pyrrolidone Gamma-butyrolactam		
Phenylacetamide		
Phenylacetic acid (including salts and esters)		33 ml
Phenylacetonitrile	Benzyl cyanide, Benzeneacetonitrile Benzyl nitrile	
Phenylacetyl chloride		
1-Phenyl-2-chloropropane		
1-Phenyl-2-nitropropene		
Phenylpropanolamine	Norephedrine	
1-Phenyl-1-Propanone	Phenylethylketone Propiophenone	
1-Phenyl-2-propanone	Benzyl methyl ketone Phenylacetone	39 g
1-Phenyl-2-propanone oxime		
1-Phenyl-2-propanol		
Phosphorus red/white		19 g
Phosphorous acid	Phosphonic Acid	
Pseudoephedrine (including salts)		37 g
Pyridine		

Division 2 — Things

Item	Description
1	Any storage device containing ammonia gas where the mass of the storage device is less than one tonne.



25.3 Category 2 Items and purchase controls

Category 2 items (substances and things) are listed in Schedule 4 of the Misuse of Drugs Act Regulations 1982. Purchasers of Category 2 items are required to either hold an account with the supplier and provide a written order for the item or alternatively complete an end user declaration and provide evidence of identity on order and receipt of the item. Copies of end user declarations for Category 2 items will be provided to the Commissioner of Police as soon as practicable.

Table 9: Category 2 items under the Misuse of Drugs Act Regulations 1982, Schedule 4.

Division 1 — Substances		
Chemical name	Alternate name	Quantity of substance in seized sample
N-Acetylanthranilic acid	0-Acetamidobenzoic acid	
Allylbenzene	3-Phenyl-1-propene, 2-Propenyl Benzene	
Ammonium formate		
Anthranilic acid	2-Aminobenzoic acid	
Benzaldehyde		
Benzyl chloride	a-Chlorotoluene	
Benzyl bromide	a-Bromotoluene	
Alkali metal - Calcium		
Chromic acid (including salts)		
Chromium trioxide	Chromium (VI) oxide	
Ergometrine	Ergonovine	
Ergotamine		
Ethanamine	Monoethylamine	
N-Ethylephedrine		
N-Ethylpseudoephedrine		
Formamide		
Hydrobromic acid	Hydrogen bromide solution	
Hypophosphite salts		
Isosafrole	1, 3-Benzodioxole, 5-(1-propenyl)	
Alkali metal - Lithium		7 g
Lysergic acid		
Alkali metal - Magnesium		
Methylamine (& gas)	Aminomethane/Monomethylamine	135 ml



Chemical name	Alternate name	Quantity of substance in seized sample
Methylammonium salts		
N-Methylformamide		
Palladium (including salts)		
Phenylalanine		
Piperidine		
Piperonal	3,4-Methylenedioxy-benzaldehyde, Heliotropine	50 g
Alkali metal - Potassium		
Propionic anhydride		
Raney nickel		
Safrole	5-(2-Propenyl)-1, 3-Benzodioxole	69 ml
Sassafras oil		91 ml
Sodium Borohydride		
Alkali metal - Sodium		24 g
Thionyl chloride		
Thorium (including salts)		

Division 2 — Things

Description	Details
Gas cylinder containing hydrogen sulphide gas	
Gas cylinder containing hydrogen gas	
Gas cylinder containing methylamine gas	
Description	Details
Round bottom reaction flask	Capacity 500 ml or greater (including the repair or modification)
Condenser	Joint size B19 or greater
Splash heads and distillation heads	
Heating mantles	Capacity 500 ml or greater (including the repair or supply of parts)
Encapsulators (Capsule filling machines)	Manual or mechanical
Pill presses (including a part for a pill press)	Manual or mechanical
Rotary evaporators	



26. RADIOACTIVE CHEMICALS

When working with radioactive chemicals, all aspects of the Chemical Safety Manual must be followed as well as the [Radiation Safety Manual and/or the NORM Management Guidelines](#).

27. HEALTH & SAFETY DOCUMENTS & FORMS

27.1 University Documents & Forms

For further advice on managing risks in university workplaces, including procedures, guidance, forms and training courses, refer to the Health and Safety [Policies and Procedures website](#), including:

Health and Safety Policy

Health and Safety Responsibilities Procedures

Health and Safety Management Standards

Pre-purchase checklist for Chemicals

Pre-purchase checklist for Gases

Pre-purchase checklist for Materials

Pre-purchase checklist for Plant and Equipment

Generic Risk Assessment Template

Safe Work Procedure template

Workplace Inspection Checklist

Induction Checklist

Waste Disposal Manifest

[Management of Time Sensitive Chemicals](#)

[Managing Chemical Waste Guidelines](#)

Emergency Response information including First Aid and Warden information is located at [Emergency Management](#).



28. REVISION AND UPDATES

This management plan has been developed as a living document that reflects the changes in legislation, standards and guidelines available. This plan is subject to periodic review and new editions published. It is important that readers assure themselves that the current management plan is referenced and that current standards including any amendments, legislation and/or guidance are implemented.

As a minimum this document will be updated every 3 years.

Throughout this document various web links have been provided to Curtin's internal documents and other third-party documents. These links are subject to change with updating information. Every effort will be made to ensure internal Curtin University links remain active. Curtin University has no control over external websites and/or documentation. If a link does not work it is recommended going to the home page of the website being referenced and search for the required document.

28.1 Revision History

Revision #	Date	Amendment Description
Version 1	19/07/2016	Issued for use
Version 2.0	28/10/2019	Scheduled revision
Version 3.0	21/04/2022	Scheduled revision
Version 4.0	23/06/2022	Updates to Time Sensitive Chemicals guidance to align with new guidance material.
Version 5.0	28/6/2024	Scheduled revision



APPENDIX 1. REFERENCED WEB SITES

A1.1 Curtin Internal Web Sites

- Compliance Framework, Compliance Services
<https://staffportal.curtin.edu.au/governance/risk-compliance-audit/compliance/>
- Emergency Management Plans, Emergency Management
<https://properties.curtin.edu.au/campus-safety/emergency-management/>
- Health and Safety, Department of Health and Safety
<https://www.curtin.edu.au/healthandsafety/>
 - Hazardous Materials Website, Department of Health and Safety
<https://www.curtin.edu.au/healthandsafety/hazardous-materials/>
 - Incident and Hazard Reporting (CHARM), Department of Health and Safety
<https://www.curtin.edu.au/healthandsafety/incident-reporting/>
 - Policies and Procedures, Department of Health and Safety
<https://www.curtin.edu.au/healthandsafety/documents/>
 - Training, Department of Health and Safety
<https://www.curtin.edu.au/healthandsafety/training/>
- Guidelines; Properties, Facilities & Development
<https://properties.curtin.edu.au/working-with-us/>
 - Guidance for the Storage of Chemicals; Properties, Facilities & Development
<https://s38508.pcdn.co/wp-content/uploads/sites/5/2022/01/guidance-for-storage-of-chemicals.pdf>
 - Guidance for Gas Management and Gas Store Design; Properties, Facilities & Development
<https://s38508.pcdn.co/wp-content/uploads/sites/5/2022/01/guidance-for-gas-management-gas-store-design.pdf>
- Manage your research, Research Office at Curtin
<https://staffportal.curtin.edu.au/research/manage-research/>
- Policies, Compliance Services
<https://www.curtin.edu.au/about/governance/compliance-legal/find-a-policy/>
- Risk Management Framework, Risk Management
<https://staffportal.curtin.edu.au/governance/risk-compliance-audit/risk-management/>
- Work Integrated Learning
<https://staffportal.curtin.edu.au/learning-and-teaching/coordination/wil/>



A1.2 Legislation Web Sites

- Western Australian Legislation, Government of Western Australia
<https://www.legislation.wa.gov.au/>
- Federal Register of Legislation, Australian Government
<https://www.legislation.gov.au/>

A1.3 Standards, Codes and Further Guidance

- Australian Standards, SAI Global Techstreet
<https://link.library.curtin.edu.au/cgi-bin/auth-ng/gateway.cgi?url=http://www.saiglobal.com/online/autologin.asp>
- Concessional Spirits, Australian Taxation Office
<https://www.ato.gov.au/businesses-and-organisations/gst-excise-and-indirect-taxes/excise-on-alcohol>
- Public Chemical Registration Information System Search, Australian Pesticides and Veterinary Medicines Authority
<https://portal.apvma.gov.au/pubcris>
- SafeWork Australia, Australian Government
<https://www.safeworkaustralia.gov.au/>
 - National Code of Practice for the Labelling of Workplace Substances [NOHSC: 2012 (1994)] SafeWork
<https://www.safeworkaustralia.gov.au/doc/national-code-practice-labelling-workplace-substances-nohsc-2012-1994>
 - Labelling Chemicals, SafeWork
<https://www.safeworkaustralia.gov.au/safety-topic/hazards/chemicals/labelling-hazardous-chemicals>
 - Safety Data Sheets, SafeWork
<https://www.safeworkaustralia.gov.au/safety-topic/hazards/chemicals/safety-data-sheets>
- Trade Waste, Water Corporation
<https://www.watercorporation.com.au/home/business/trade-waste>