

Policy

Where any University activity requires the use of materials that are hazardous, dangerous, flammable, toxic, corrosive, poisonous, carcinogenic or otherwise harmful to health or the environment, certain requirements for the storage, handling, and disposal must be met. All safe work procedures should be adopted from the policies, procedures and guidelines from the Environment, Health and Safety Manual Section 5.2 – Chemical Management. <http://www.unimelb.edu.au/ehsm/5.html#5.2>.

Where chemicals and other substances are covered by specific legislation, such as Radiation and Biohazards, they have been dealt with elsewhere in the EHSM. Personal items used for private purposes are excluded from the requirements of the legislation and this policy.

Categories of Chemicals

Dangerous Goods:

- ◆ Dangerous Goods Act 1985
- ◆ Dangerous Goods (Storage & Handling) Regulations 2000
- ◆ Code of Practice for the Storage & Handling of Dangerous Goods

Hazardous Substances:

- ◆ Occupational Health & Safety Act 2004
- ◆ OH&S Regulations 2007 (Hazardous Substances)
- ◆ Code of Practice for Hazardous Substances

Poisons and Controlled Substances:

- ◆ Drugs, Poisons and Controlled Substances Act 1981
- ◆ Drugs, Poisons and Controlled Substances Regulations 2001
- ◆ Standard for the Uniform Scheduling of Drugs and Poisons (as amended)

* Chemicals may fit into two or more categories and may be covered by multiple sets of legislation.

Storage and Handling risk assessments have been conducted for Dangerous Goods, Hazardous Substances and Drugs and Poisons. If a laboratory or workshop is unable to comply with these requirements, they must produce a separate risk assessment.

General Requirements

All areas managing chemicals must ensure the following:

1. Items are segregated according to requirements detailed in risk assessments
2. A spill kit is available (within 5 minutes access) to all laboratory and workshop areas
3. Chemicals which are temperature sensitive should be kept in a controlled environment
4. Avoid direct sunlight on chemicals as this may accelerate the failure of the container
5. Containers of more than 1 Litre or 1 Kilogram must not be stored above a height of 1.5 metres

Management Requirements

Placarding

The placard is called the HAZCHEM sign and may be used by the Emergency Services. It is required by law. It indicates the classes of Dangerous Goods which are stored inside a building. This signage must be displayed on the entrance to any area where materials stored exceed minimum quantities.

Chemical Inventories

Every laboratory should maintain a chemical inventory that has the following information for ALL chemicals. This information is on the label, or is available from the material safety data sheet:

◆ Name	Product Name including common name and synonyms
◆ Quantity	Size of Container in litres or kilograms
◆ DG Class	Class 1 – 9 (Dangerous Goods Only)
◆ Sub Risk	Sub Class 1 – 9 (Dangerous Goods Only)
◆ UN No	United Nations Identification (Dangerous Goods Only)
◆ Haz Sub	Designation by NOHSC or Worksafe
◆ Poison S()	Poisons Schedule (if app)
◆ Location	Room Number or Shelf
◆ Supplier	Name of Supplier ie AJAX

Labeling

The label on a container should alert the user of the significant hazards associated with the substance. The primary responsibility for labelling will rest with the Manufacturer / Supplier, All laboratories must ensure ALL items they hold and use are correctly labelled:

- Items purchased from overseas
- Items that are decanted from primary containers
- Items that are prepared by mixing chemicals together
- Items that are diluted from their original concentration
- Items that are designated as waste for disposal

Labels should show the following information:

<i>Dangerous Goods over 500 ml</i>	<i>Dangerous Goods under 500 ml</i>	<i>Non Hazardous / Non Dangerous</i>
Product & Chemical Name	Product Name & Chemical Name	Product Name & Chemical Name
UN Number	Name	Name
Class & Sub Risk Diamond	Class Diamond & Subsidiary Risk	Buffers may have abbreviations (EG: PBS)
Ingredients (if applicable)	Risk	Reference to the full ingredients for abbreviations
A key Risk or Safety Phrase	A key Risk or Safety Phrase	
First Aid / Emergency Procedures	First Aid Procedures	

* Materials that have been designated as hazardous substances must be marked with HAZARDOUS

Material Safety Data Sheets

Material Safety Data Sheets (MSDSs) must be accessible (hardcopy or web) for ALL dangerous goods, Hazardous Substances and Drugs and Poisons. The MSDS should – where possible:

1. Be current – less than 5 years since publication of last review
2. Have an Australian emergency contact number
3. Be from the supplier, or the supplier's agent
4. Contain information to show Dangerous Goods, Hazardous Substances and Drugs Scheduling
5. Comply with the formatting requirements of the Australian Standard for MSDSs.



Guidelines, Risk Assessments and Controls – DANGEROUS GOODS

<i>Class</i>	<i>Hazards & Risk</i>	<i>Laboratory Storage</i>	<i>Transport</i>	<i>Reference</i>
<i>Class 1 Explosives</i>	<i>EXTREME RISK</i>	Permit Required	Authorised persons only	
<i>Class 2.1 Flammable Gases</i>	<i>MEDIUM RISK</i>	1 G size per 20 m ² space Regulator required Secured with a chain or strap 3 m from ignition sources Vent exhaust lines to hoods Do not store lying down	Trolley to carry cylinder	AS 2243.2 (2006) Section 4.3.2 AS 2243.6 (1990) Section 3 AS 2030.1 (2009) Section 8
<i>Class 2.2 Non Toxic Gases</i>	<i>LOW RISK</i>	1 G size per 20 m ² space Regulator required Secured with chain or strap Do not store lying down	Trolley to carry cylinder	AS 2243.6 (1990) Section 3 AS 2030.1 (2009) Section 8
<i>Class 2.2 Cryogenic liquids</i>	<i>LOW RISK</i>	150 lt per 50 m ² floor space <i>Oxygen monitoring must be fitted if this limit is exceeded</i> Inspections by suppliers Store in well ventilated areas	Trolley for over 10 lt Carriers must be: - Spill proof - Break proof	AS 2243.2 (2006) Appendix D AS 1894 (1997)
<i>Class 2.3 Poisonous Gases</i>	<i>HIGH RISK</i>	1 G size per 20 m ² space Regulator required Secured with chain or strap Vent exhaust lines to hoods Do not store lying down	Trolley to carry cylinder	AS 2243.6 (1990) Section 3 AS 2030.1 (2009) Section 8
<i>Class 3 Flammable Liquids</i>	<i>MEDIUM RISK</i>	Under 20 lt : closed cupboard (must have a spill tray) Over 20 lt : AS 1940 cabinet Max 5 lt in container on bench	Carriers for 2.5 lt quantities: - Spill proof - Break proof	AS 1940 (2004) Section 2 – NOTE: minor quantities must not exceed 50 lt per 50 m ² . AS 2243.8 (2006) Section 6 – NOTE: volume of flammable liquids



		Max 7.5 lt in a fume cupboard 3 m from ignition sources 10 cm from power points 1.5 m from other classes Refrigerate in an intrinsically safe store		not to exceed 7.5 lt / m2 AS 2243.10 (2004) Table 1 – NOTE: Max quantity outside of a cabinet: 10lt
Class 4.1 Flammable Solids	HIGH RISK	Max size: 10 kg container 3 m from ignition sources Read MSDS for storage Segregate from materials - 3 m from other classes	Double contain containers Avoid contact with skin	AS 2243.2 (2006) Section 4.4.1 AS 2243.10 (2004) Table 1 – NOTE: 20 kg max aggregate quantity for Classes 4.1, 4.2, 4.3, 5.1 & 5.2
Class 4.2 Spontaneously Combustible	HIGH RISK	Max size: 10 kg container 3 m from ignition sources Read MSDS for storage Keep 3 m from other classes	Double contain containers Avoid contact with skin	AS 2243.2 (2006) Section 4.4.1 AS 2243.10 (2004) Table 1 – NOTE: 20 kg max aggregate quantity for Classes 4.1, 4.2, 4.3, 5.1 & 5.2
Class 4.3 Dangerous when wet	HIGH RISK	Max size: 10 kg container 3 m from ignition sources Keep away from moisture Read MSDS for storage Keep 1.5 m from other classes	Double contain containers Avoid contact with skin	AS 2243.2 (2006) Section 4.4.1 AS 2243.10 (2004) Table 1 – NOTE: 20 kg max aggregate quantity for Classes 4.1, 4.2, 4.3, 5.1 & 5.2
Class 5.1 Oxidisers	HIGH RISK	Max size: 10 kg container Segregate from Class 3 & 4 Keep 1.5 m from other classes	Double contain containers Avoid contact with skin	AS 2243.10 (2004) Table 1 – NOTE: 20 kg max aggregate quantity for Classes 4.1, 4.2, 4.3, 5.1 & 5.2
Class 5.2 Organic Peroxide	HIGH RISK	Max size: 10 kg container Segregate from Class 3 & 4 Keep 1.5 m from other classes	Double contain containers Avoid contact with skin	AS 2243.10 (2004) Table 1 – NOTE: 20 kg max aggregate quantity for Classes 4.1, 4.2, 4.3, 5.1 & 5.2
Class 6.1 Toxic Substances	MEDIUM RISK	Keep containers sealed Liquids banded in spill trays Solids segregated on shelving	Carrier for liquids (2.5lt)	
Class 6.2	MEDIUM RISK	Laboratory must be signed	Double contain infectious	



<i>Infectious Materials</i>		Store area must be signed Segregate from materials - in a sealed container	items Carrier for liquids (2.5lt)	
<i>Class 7 Radioactive Materials</i>	<i>MEDIUM RISK</i>	Laboratory must be signed Store area must be signed Monitoring must be conducted Results to be recorded Max quantities as permit states Segregate from materials - at least 1.5 m distance	Store in appropriate container: - Lead - Perspex - Other – as stipulated	AS 2243.4 (1998)
<i>Class 8 Corrosives: Acids</i>	<i>MEDIUM RISK</i>	Under 20 lt : closed cupboard (must have a spill tray) Over 20 lt : approved cabinet Segregate 10m from incompatible classes	Carriers for 2.5 lt quantities: - Spill proof - Break proof	AS 2243.10 (2004) Table 1 – NOTE: Max quantity outside of a cabinet: 20lt / 50kg AS 3780 (1994) Table 1 – NOTE: Max quantity for minor storage 50 kg of PG 1 (250 kg PG 2, 1000 kg PG 3)
<i>Class 8 Corrosives: Alkalis</i>	<i>MEDIUM RISK</i>	Under 20 lt : closed cupboard (must have a spill tray) Over 20 lt : approved cabinet Segregate 10m from incompatible classes	Carriers for 2.5 lt quantities: - Spill proof - Break proof	AS 2243.10 (2004) Table 1 – NOTE: Max quantity outside of a cabinet: 20lt / 50kg AS 3780 (1994) Table 1 – NOTE: Max quantity for minor storage 50 kg of PG 1 (250 kg PG 2, 1000 kg PG 3)
<i>Class 9 Miscellaneous</i>	<i>MEDIUM RISK</i>	5 kg / lt per 20 m2 space Avoid interaction with: - incompatible chemicals	As per specifications in MSDS	

Guidelines, Risk Assessments and Controls – HAZARDOUS SUBSTANCES

Certain Chemicals are known to cause cancer in humans, and have been listed from Appendix 1 of the NHMRC list of carcinogenic substances. Special considerations for storage, handling, safety, protection, contamination and monitoring of these substances are required. Every effort should be made to use non-carcinogenic or less toxic chemicals in preference to carcinogenic or highly toxic ones.

<i>Type of Hazard</i>	<i>Description of Outcome</i>	<i>Indication of Risk</i>	<i>Control Measures</i>
Harmful Toxic Corrosive Irritant Sensitiser Carcinogenic	<ul style="list-style-type: none"> ▪ Exposure over time can cause illness or deterioration of health ▪ Tissue damage from burns from corrosive agents ▪ Can cause allergic reactions to skin or respiratory system ▪ Can cause tumour growth to target organs ▪ Can affect cells by altering genetic information, some HS may target reproductive cells 	<p>MEDIUM RISK</p> <p>MEDIUM RISK</p> <p>LOW RISK</p> <p>HIGH – EXTREME</p> <p>HIGH - EXTREME</p>	All designated hazardous substances must be used in ways that reduce the production of aerosols or dusts. Staff and students using hazardous substances must be made aware of their hazardous nature, and be provided with appropriate personal protective equipment:
Mutagenic Teratogenic Genotoxic			

Suggested Control Measures for Handling Hazardous Substance

- Handle and open container with care
- Keep in a cool place
- Keep away from heat
- Do not breathe dust
- Do not breathe vapour
- Use only in well ventilated areas
- Avoid contact with skin
- Avoid contact with eyes



Guidelines, Risk Assessments and Controls – DRUGS AND POISONS

Chemical substances which have been listed by the SUSDP are required to be stored in secure areas due to their nature as potential therapeutic agents, or drugs of addiction. A permit to store and handle these items is required by law through the Department of Human Services (DHS).

Schedule	1	2	3	4	5	6	7	8	9
Risk Score	LOW	LOW	LOW	MEDIUM	MEDIUM	HIGH	HIGH	HIGH	HIGH
Permits & Record Keeping	No permit required	Permit through application for Schedule 4 licence	Permit through application for Schedule 4 licence	Apply for permit through department of human services Keep records of use	No permit required	No permit required	Permit required through DHS and site visit to show where schedule 7 items are stored Nominated key holder required	Permit required through DHS Drug of Addiction Cabinet Nominated key holder required Keep records of use	Permit required through DHS Drug of Addiction Cabinet Nominated key holder required Keep records of use
Storage	Nil requirements for specialised storage Keep out of reach of children	Nil requirements for specialised storage Keep out of reach of children	Nil requirements for specialised storage Keep out of reach of children	Stored under lock and key in a secure cupboard or a lockbox in a refrigerator secured to a shelf.	No specialised storage requirements	but are toxic to inhale or ingest	Storage in a metal box securely affixed to the wall or floor.	Storage in a drug of addiction safe securely affixed to the wall or floor.	Storage in a drug of addiction safe securely affixed to the wall or floor.