

CHEMICAL LABELLING

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1 INTRODUCTION

All chemical containers must be labelled to identify their contents. The labels for hazardous chemicals provide additional information so that we can quickly identify associated hazards and the precautions required to eliminate or minimise risk.

2 PURPOSE

This guideline has been developed in support of the University's [Chemical Safety Standards](#).

Faculties, schools, research groups and professional services units are encouraged to use this document as a primary reference when establishing local procedures for the labelling of chemicals.

3 BACKGROUND

3.1 WHAT IS A HAZARDOUS CHEMICAL?

Hazardous chemicals are classified in accordance with the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) and Schedule 6 of the Work Health and Safety Regulation 2011.

Hazardous chemicals pose a risk to safety due to their health or physicochemical hazards.

3.2 WHAT IS THE GHS?

The GHS is an internationally agreed classification and labelling system published by the United Nations to provide a consistent approach to hazard communication through labels and safety data sheets. The GHS is being progressively implemented by Australian States and Territories. Within NSW, full implementation is required by 1 January 2017. Further information: [Introduction to the GHS](#).

4 STANDARD LABELLING REQUIREMENTS

Hazardous chemicals must be labelled in accordance with the WorkCover NSW Labelling of workplace hazardous chemicals Code of Practice [1].

4.1 GENERAL

Chemical labels must be in good condition, visible, easy to read and written in English.

Empty food or drink containers must never be used to hold chemicals, even if correct labelling is applied.

4.2 LABEL ELEMENTS

Below is a summary of the full set of labelling elements.

4.2.1 PRODUCT IDENTIFIER

A product identifier is a unique name or number by which the chemical product is known.

4.2.2 INGREDIENT PROPORTIONS OR CONCENTRATIONS

A label must identify hazardous ingredients and their proportions. These can be expressed as the IUPAC name, CAS name or the technical name that is generally used and recognised by the scientific community.

The legislation makes specific arrangements to address issues of commercial confidentiality.

4.2.3 SIGNAL WORDS

Signal words indicate the severity of hazard. '**DANGER**' is used to indicate a more severe or significant hazard. '**WARNING**' is used for less severe hazards.

4.2.4 HAZARD PICTOGRAMS

There are nine hazard pictograms relating to physical, health and environmental hazards in the GHS. Multiple pictograms may be applied to a single chemical or chemical product.

4.2.5 HAZARD STATEMENTS

Hazard statements describe the nature of the hazard. These are unique for each hazard class and category. All relevant hazard statements appear on the label.

4.2.6 PRECAUTIONARY STATEMENTS

Precautionary statements describe the recommended measures that should be taken to prevent exposure or other adverse effects. These statements are separated into five separate categories.

- **Prevention** of events or exposure
- **Response** in the event of an accident
- **Storage** instructions
- **Disposal** instructions
- **General** measures that may be common to many hazard classes.

4.2.7 OTHER SPECIFIC HAZARD INFORMATION

Any other information about the hazards, first aid or emergency procedures that is not included in the hazard statements or precautionary statements.

4.2.8 EXPIRY DATE

Some chemicals degrade, decompose or become unstable over time. In these cases an expiry date must also be added to the label. It is good practice to date chemical containers as soon as they arrive in the work area.

4.2.9 SUPPLIER CONTACT INFORMATION

The label must include Australian contact details for the manufacturer or importer.

Flammosol	Product identifier
Contains: Aliphatic hydrocarbons 95% Toxicole 5%	Identity and proportion of each chemical i
500ml	
DANGER	Signal word
 	Pictograms
Highly flammable liquid and vapour Toxic if swallowed Causes skin irritation	Hazard statements
Keep away from sparks and open flames. – No smoking. Wear protective gloves and eye and face protection.	Precautionary statements
Wash hands thoroughly after handling.	
Do not eat, drink or smoke when using this product.	
Store locked up in well ventilated place. Keep cool.	Other useful information
Dispose of contents / container in accordance with local regulations.	
Refer to the Safety Data Sheet before use.	Name, address and telephone number of Australian manufacturer or importer.
Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000	

Figure 1: Example of a correctly labelled container from a supplier or manufacturer [2]

4.3 SUPPLIER LABELS

Manufacturers and suppliers are required to provide full GHS labeling (as shown Figure 1). Hazardous chemicals purchased from a chemical supplier will typically be labelled in accordance with these requirements.

5 REDUCED LABELLING REQUIREMENTS

In some specific situations reduced labelling is permitted. Examples include:

- Chemicals with known hazards that are not supplied to another organisation, e.g. mixtures and stock solutions.
- Chemicals that have been decanted or transferred
- Chemicals packaged in small containers

- Research chemicals or samples for analysis
- Hazardous waste.

Despite the reduced requirement, as much information should be provided as is reasonably practicable.

5.1 MIXTURES AND STOCK SOLUTIONS

At a minimum the workplace label for a chemical mixture or stock solution must include:

- Mixture or solution identifier
- Hazardous ingredients and concentrations
- Hazard pictogram or hazard statement (based on priority)
- Name of person who prepared the mixture or stock solution
- Date of preparation
- Name of Supervisor (if a research student).

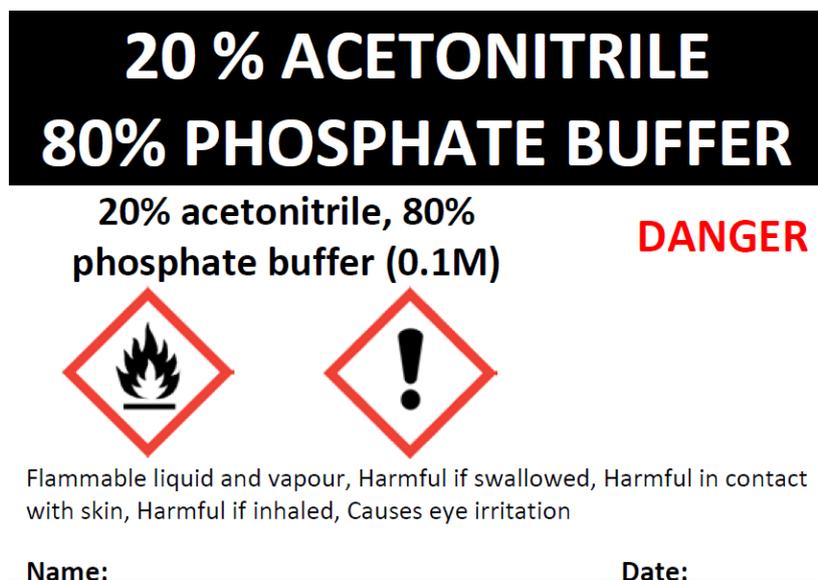


Figure 2: Example of a University workplace label

5.2 DECANTED CHEMICALS

Labelling is not required if a decanted chemical is to be used immediately by the person who decanted it.

If a chemical has been decanted or repackaged and will not be used immediately it is our responsibility to make sure that the container is labelled correctly. At a minimum, the label for a decanted chemical must include:

- Chemical name and concentration
- Hazard pictogram or hazard statement
- Name of person who decanted the chemical
- Date of decant
- Name of Supervisor (if a research student).

If a chemical has been decanted from the original supplier bottle, but has otherwise not been changed, ChemAlert can be used to printout a new label to place on the container.

Permanently labelled containers, for example those used for stock solutions, must not be used to contain any other substance or mixture other than those specified on the label.

5.3 SMALL CONTAINERS

Small containers of workplace chemicals must be labelled with the chemical name and concentration and any relevant hazard statements. Where reasonably practical, also provide precautionary statements. Reference can be made to the SDS (Figure 3).

For very small sample containers or vials containing material with similar risks, which may not have room for an individual label, attach a label to the sample rack or box. It is also recommended to have an index sheet which provides further information for individual samples.

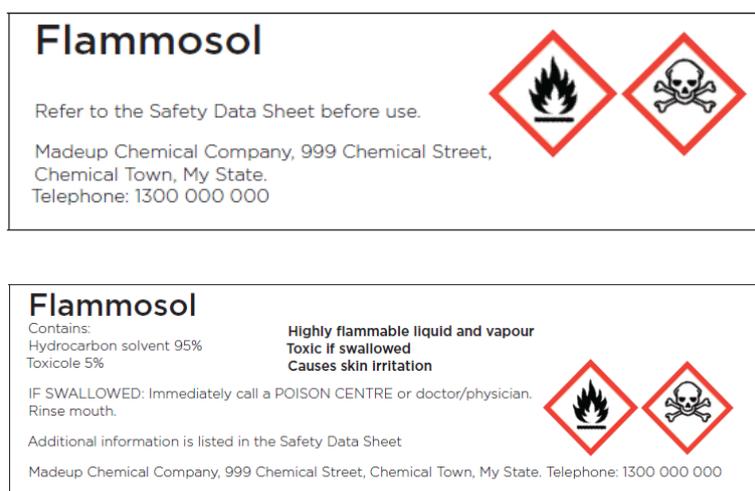


Figure 3: Examples of correctly labelled small containers from a chemical supplier [1]

5.4 RESEARCH CHEMICALS OR SAMPLES FOR ANALYSIS

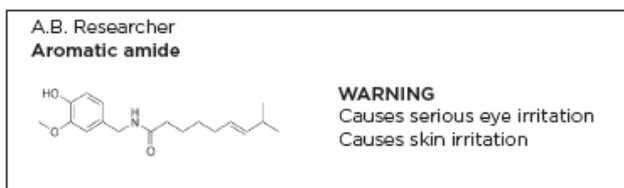
Labels should contain as much hazard information as possible based on the known or suspected hazards. The label for a novel research chemical must have at a minimum:

- Chemical name
- Hazard pictogram or hazard statement
- Name of person who prepared the chemical or sample
- Date of preparation
- Name of Supervisor (if a research student).

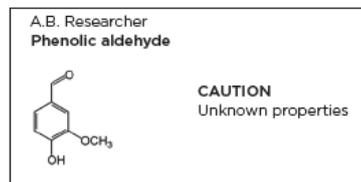
The chemical name used for a research chemical or sample for analysis may be:

- The actual name of the chemical
- A commonly recognised abbreviation or acronym
- A chemical formula, structure or reaction component.

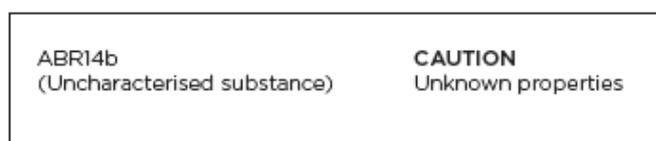
In some situations it may be difficult to identify exact ingredients. In these cases chemical families should be listed where possible, e.g. aliphatic alcohols, aromatic hydrocarbons etc.



Chemical identity and some hazardous properties known



Hazardous properties unknown, but chemical identity known



Hazardous Properties and chemical identity have not been determined

Figure 4: Examples of a correctly labelled research compound [1]

5.5 UNKNOWNNS

Occasionally labels fall off containers, are damaged or faded. If for any reasons the contents of a chemical container are unknown the container must be labelled '**Caution – Do Not Use – Unknown Substance**'.

Unknown chemical items must be isolated and disposed of via the University's Hazardous Waste Disposal program. Immediately replace a label if it is becoming difficult to read or in danger of falling off.

5.6 NANOMATERIALS

The hazard statements below are recommended for nanomaterials with unknown hazard characteristics.

- '**Contains engineered nanomaterials**'
- '**Caution hazards unknown**'.

5.7 HAZARDOUS WASTE LABELLING

All hazardous waste must be appropriately labelled. Hazardous Waste labels are provided by [Safety, Health and Wellbeing](#). Please refer to the University's [Hazardous Waste Guidelines](#).

5.8 OTHER LABELLING REQUIREMENTS

Some hazardous chemicals are labelled in accordance with alternate labelling requirements. These include:

- **Therapeutic goods** – labelled in accordance with the requirements of the Therapeutic Goods Administration (TGA).

- **Dual use products** – labelled in accordance with the requirements of the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
- **Food and Drink** – not labelled as hazardous chemicals, except when in bulk quantities.

5.8.1 AGRICULTURAL AND VETERINARY CHEMICALS

Agricultural and veterinary chemicals (AgVet), as defined in the Commonwealth's Agricultural and Veterinary Chemicals Code Act 1994, must have a label in English and comply with requirements of the Australian Pesticides and Veterinary Medicines Authority (APVMA). They must also include a hazard statement and precautionary statements consistent with the classification of the chemical.

AgVet chemicals do not require a signal word or pictogram on labels.

6 WHAT HAPPENED TO DANGEROUS GOODS CLASSES?

The GHS labeling system does not completely replace the use of Dangerous Goods class diamonds. Dangerous Goods classes and diamonds will continue to be used in the transport of chemicals and the placarding of dangerous goods storage depots.

Refer Appendix A: Comparison of Dangerous Goods class diamonds and GHS hazard pictograms.

7 REVIEW AND EVALUATION

Guidelines are reviewed by Safety Health & Wellbeing at least once every two years to identify and implement opportunities for improvement.

8 REFERENCES

1. WorkCover NSW, Code of Practice, [Labelling of workplace hazardous chemicals](#), 2015.
2. Safe Work Australia, [Understanding hazardous chemical labels](#), 2012 [accessed August 2015].
3. Safe Work Australia, [Guidance on the Classification of Hazardous Chemicals under the WHS Regulations](#), 2012.
4. Safe Work Australia, [Classification and labelling of workplace hazardous chemicals laboratory poster](#) [accessed August 2015].

9 DOCUMENT CONTROL

Acknowledgements		Figure 3 & 4, Appendix 1: WorkCover NSW, Code of Practice, Labelling of Workplace Hazardous Chemicals , 2011			
Related Documents		WHS_CHE_STD_1_Chemical Safety Standards WHS_CHE_GUI_1_Introduction to the GHS			
Version Control	Date released	Author	Custodian	Approved by	Amendment
1.0		Sandra Chapman, WHS Specialist (Chemical)	Manager, Work Health & Safety Services	Director, Safety Health & Wellbeing	Original

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APPENDIX A COMPARISON OF GHS & DANGEROUS GOODS PICTOGRAMS

Hazard Pictograms	GHS Hazard	Dangerous Goods class labels (pictograms)	Dangerous goods classes
	Explosives Self-reactives Organic peroxides	 	Explosive
	Flammables Self-reactives Pyrophorics Self-heating Emits flammable gas in contact with water Organic peroxides	 	<ul style="list-style-type: none"> Flammability (Liquid, Solid or Gas) Pyrophoric, Emits Flammable Gas Organic Peroxide
	Oxidisers	 	<ul style="list-style-type: none"> Oxidiser Oxidising gas
	Gases under pressure	 	Non-toxic non-flammable gas, flammable gas, oxidising gas, toxic gas
	Acute toxicity	 	<ul style="list-style-type: none"> Acute toxicity Acute Toxic gas
	Acute toxicity Skin irritants Eye irritants Skin sensitisers	No equivalent	



	Carcinogens Respiratory sensitisers Reproductive toxicants Target organ toxicants Germ cell mutagens	No equivalent	
	Eye corrosion Skin corrosion Corrosive to metal		Corrosive to metals
	Aquatic toxicity. Not covered within the scope of workplace hazardous chemicals requirements		Environmental hazard
No equivalent hazard pictogram			Miscellaneous dangerous goods
Not covered within the scope of workplace hazardous chemicals requirements			Infectious
Not covered within the scope of workplace hazardous chemicals requirements			Radioactive