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# **Hazardous Chemicals - labelling**

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# **Hazardous Chemicals - labelling**

## **1 Introduction**

Under the [*NSW WHS Regulation 2011*](http://www.legislation.nsw.gov.au/viewtop/inforce/subordleg+674+2011+cd+0+N/?dq=Regulations%20under%20Work%20Health%20and%20Safety%20Act%202011%20No%2010), all hazardous chemicals used, handled or stored in the workplace must be appropriately labelled so that users can identify any associated hazards and implement the recommended precautions to eliminate or minimise risks.

## **2 Labelling Hazardous Chemicals**

### 2.1 General Requirements

All chemical labels must be written in English and be firmly secured to the container, visible in the normal storage position, durable, and in good condition.

### 2.2 Label Elements

The following elements are required for containers of hazardous chemicals to be correctly labelled:

* + 1. Product identifier – a unique name or number by which the chemical is known
    2. Supplier contact information – the name, Australian address and business telephone number of either the manufacturer or importer
    3. Ingredient proportions or concentrations – the identity and proportion disclosed for each chemical ingredient: using the IUPAC name[[1]](#footnote-1), the CAS name[[2]](#footnote-2) or the technical name generally used and recognised by the scientific community
    4. Hazard pictograms – any hazard pictogram consistent with the correct classification of the chemical. The GHS specifies nine hazard pictograms which depict physical, health and environmental hazards
    5. Signal word consistent with the classification. Only one signal word should be present on any one label:
* **DANGER** is used for more severe hazards
* **WARNING** is used for less severe hazards.
  + 1. Hazard statements – these are unique to each hazard class and category and describe the nature of the hazard. All relevant hazard statements must appear on the label
    2. Precautionary statements – these are unique to each hazard class and category and are divided into the following five categories:
       - Prevention - to prevent accidents or exposure
       - Response - instructions in case of accident
       - Storage - instructions for safe storage
       - Disposal - appropriate disposal instructions
       - General
    3. Other information about the hazards, first aid and emergency procedures relevant to the chemical
    4. Expiry date of the chemical (if applicable) – some chemicals degrade, decompose, or become unstable over time.



Flammosol

Contains:

Aliphatic hydrocarbons 95%

Toxicole 5%

Product identifier

Identity and proportion of each chemical ingredient

500ml

**DANGER**

**Highly flammable liquid and vapour**

**Toxic if swallowed Causes skin irritation**

Signal word Pictograms

Hazard statements

Keep away from sparks and open flames. – No smoking.

Wear protective gloves and eye and face protection.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Store locked up in well ventilated place. Keep cool.

Dispose of contents / container in accordance with local regulations.

Refer to the Safety Data Sheet before use.

IF SWALLOWED: Immediately call a POISON CENTRE or

doctor/physician. Rinse mouth.

IF ON SKIN (or hair): Take off contaminated clothing and wash before re-use.

If skin irritation occurs: Get medical advice/attention. Rinse skin using plenty of soap and water.

In case of fire: Use powder for extinction

Precautionary statements

Other useful information

Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000

Name, address and telephone number of the Australian manufacturer or importer.

**Fig 1 – Example of chemical label with full set of workplace labelling information[[3]](#footnote-3)**

### 2.3 Special Labelling Situations

Under the WHS Regulations, reduced labelling is permitted for hazardous chemicals in certain situations such as:

1. chemicals supplied in small containers
2. research chemicals or samples for analysis
3. decanted or transferred chemicals
4. hazardous wastes
5. chemicals not supplied to another workplace, and where hazards are known to the workers using the chemical
6. agricultural or veterinary chemical products
7. products containing nanomaterials.

As much information on the hazards and safe use of the chemical should always be provided on the label if possible.

#### 2.3.1 Small Containers

Some containers of hazardous chemicals are too small to attach a label with all the information as in [2.2](#_13.6.2_Label_Elements) above. Such containers must have at least the following on a label:

1. the product identifier
2. the name, Australian address and business telephone number of either the manufacturer or importer
3. a hazard pictogram or hazard statement consistent with the correct classification of the chemical, and
4. any other information referred to in [2.2](#_13.6.2_Label_Elements) above that is reasonably practicable to include.

As much information on the hazards and safe use of the chemical should be provided on the label as possible. Priority should be given to include the information relating to the most significant hazards of the chemical and the most stringent precautionary statements.

When it is impracticable to provide all hazard or safety information on a label, alternative means for communicating the information should be used (e.g. a complete set of hazard and other information may be included on an outer container or a secure swing tag).

|  |  |
| --- | --- |
| **Flammosol** | flamesmall skullsmall |
| Refer to the Safety Data Sheet before use.  Madeup Chemical Company, 999 Chemical Street,  Chemical Town, My State.  Telephone: 1300 000 000 | |

**Fig 2[[4]](#footnote-4) – Example of chemical label with minimum labelling information required and a reference to the safety data sheet**



**Fig 3 – Example of chemical label large enough to include additional information such as hazard statements, identity and proportion of hazardous ingredients, and critical first aid instructions**

#### 2.3.2 Research Chemicals or Samples for Analysis

A research chemical is a substance or mixture that has been manufactured in a laboratory for the purposes of genuine research. It is not for use or supply to others for a purpose other than genuine research.[[5]](#footnote-5) A research chemical or sample for analysis must be correctly classified and the identity of the substance or mixture must be determined.

Research chemicals or samples for analysis require the following to be considered correctly labelled:

1. the product identifier
2. a hazard pictogram or hazard statement consistent with the correct classification of the chemical
3. name of the person who prepared the chemical or sample
4. name of student’s supervisor (if applicable)
5. date of preparation.

The product identifier may be:

1. the actual name of the chemical
2. a recognised abbreviation or acronym
3. a chemical formula, structure or reaction components.

It must be clearly indicated on the label if a research chemical or sample for analysis cannot be identified. Labels must include as much hazard information as possible, based on the identity and the known or suspected hazards.

When it is impracticable to provide hazard or safety information on a label, alternative means for communicating the information should be used (e.g. a label on an outer container, a secure swing tag attached to a rack of test tubes).

|  |  |
| --- | --- |
| A.B. Researcher  **Aromatic amide** |  |
|  | **WARNING**  Causes serious eye irritation  Causes skin irritation |

**Fig 4 – Example of chemical label where the chemical identity and some of the hazardous properties are known**

|  |  |
| --- | --- |
| A.B. Researcher  **Phenolic aldehyde** |  |
| Vanillin | **CAUTION**  Unknown properties |

**Fig 5 – Example of chemical label where the chemical identity is known, but the hazardous properties have not been determined**

|  |  |
| --- | --- |
| ABR14b  (Uncharacterised substance) | **CAUTION**  Unknown properties |

**Fig 6 – Example of chemical label where the chemical identity and hazardous properties have not been determined**

**Note:** In figures 4 and 5, a generic name should be included as it allows faster communication of vital information in the event of an incident.

#### 2.3.3 Decanted or Transferred Chemicals

Hazardous chemicals which are decanted or transferred to another container and will not be used immediately require the following to be considered correctly labelled:

1. the product identifier
2. a hazard pictogram or hazard statement consistent with the correct classification of the chemical.

It is recommended that the following information is also included on the label:

1. name of person who decanted the chemical
2. name of student’s supervisor (if applicable)
3. date of decant

Labelling is not required when the entire amount of the decanted hazardous chemical is to be used immediately and:

1. it is not left unattended by the worker who decanted it
2. the decanted hazardous chemical is used only by a worker present during the process of decanting
3. the container is rendered free from any hazardous chemical immediately after use.

#### 2.3.4 Hazardous Waste

Hazardous waste must be identified and correctly classified as far as is reasonably practicable. If it is not reasonably practicable to undertake a complete hazard classification of the waste material, the hazard classification must be determined or estimated using a precautionary approach based on the known or likely constituents of the waste.

Labels for hazardous waste require the following information as a minimum:

1. the product identifier (e.g. chlorinated solvent waste, flammable waste, heavy metal waste)
2. contact details of the generator of the waste e.g. name, laboratory and business telephone number
3. a hazard pictogram or hazard statement consistent with the correct classification of the chemical

As much hazard information as possible should be included on labels for hazardous waste. Where possible also include:

1. the identity of any known or likely hazardous constituents or impurities and their concentration (e.g. contains chromium VI, 5%)
2. relevant precautionary statements
3. relevant first aid and safety directions
4. any other information that will assist with the identification of the hazardous waste and its associated hazards

|  |  |  |
| --- | --- | --- |
| **Flammable Toxic Waste – Batch 1** | flamesmall  skullsmall | |
| Contains  Mixed aromatic and aliphatic hydrocarbons (90%)  Alkyl tin (5%) |
| **Flammable liquid and vapour**  **Toxic if swallowed** |
|  |
| IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. |
|  |
|  |  | |
| Keep away from ignitions sources. – No smoking. |  | |
| In case of fire: Use powder for extinction. |  | |
| Wear protective gloves, eye and face protection. |  | |
|  |  | |
|  |  | |
| Dispose of contents in accordance with Jurisdictional Regulations | |  |
|  |  | |
| Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000  [www.madeup-chemical-company.com.au](http://www.madeup-chemical-company.com.au) | | |

**Fig 7 – This label meets workplace labelling requirements and transport inner packaging requirements for hazardous waste.**

|  |  |
| --- | --- |
| **Hydrochloric acid waste** | |
| corrosionsmall | **May be corrosive to metals**  **Causes serious eye damage** |
|  | |
| Wear eye/face protection | |
| IF IN EYES: Rinse cautiously with water for several minutes.  Remove contact lenses, if present and easy to do so. Continue rinsing. | |
| Immediately call a POISON CENTRE or doctor/physician. | |
|  | |
|  | |
| Madeup Chemical Company, 999 Chemical Street, Chemical Town, My State. Telephone: 1300 000 000  [www.madeup-chemical-company.com.au](http://www.madeup-chemical-company.com.au) | |

**Fig 8 – This label meets workplace labelling requirements and transport inner packaging requirements for hazardous waste.**

#### 2.3.5 Agricultural or veterinary chemical products

Agricultural and veterinary chemicals are not required to display hazard pictograms or signal words, but must be labelled to comply with the requirements of the Australian Pesticides and Veterinary Medicines Authority. They must also include:

1. any hazard statement consistent with the correct classification of the chemical
2. any precautionary statement consistent with the correct classification of the chemical.

#### 2.3.6 Products Containing Nanomaterials

It is recommended that labels for engineered or manufactured nanomaterials or chemicals containing engineered or manufactured nanomaterials are prepared as described above unless the nanomaterials are not hazardous. Where the hazards of the nanomaterials are not fully characterised the following label statements are recommended:

1. “Contains engineered/manufactured nanomaterials. Caution: Hazards unknown.”
2. “Contains engineered/manufactured nanomaterials. Caution: Hazards not fully characterised.”

These phrases are to be used on an interim basis only, as the manufacturer has a duty to correctly classify the chemical and include known hazards on the label in accordance with the WHS Regulations.

### 2.4 Incorrect Labels or Unknowns

When incorrectly labelled containers are found, action must be taken to label them correctly. Such containers should be stored in isolation until labelled appropriately.

Unlabelled containers should be clearly marked with the statement:

“Caution – Do Not Use – Unknown Substance”

Such containers should be stored in isolation and steps taken to identify and then correctly label the unknown chemical. If the chemical cannot be identified, disposal must be arranged through a NSW Environment Protection Authority (EPA) approved chemical waste disposal contractor.

### 2.5 Legacy Chemicals (pre-GHS)

SafeWork NSW has advised that chemical stocks purchased prior to 01 January 2017 which do not comply with the GHS will not be required to be re-labelled, or have their labels amended, provided they comply with current labelling requirements (NOHSC).[[6]](#footnote-6)

### 2.6 Labelling of Non-Hazardous Chemicals

Chemicals which do not meet the GHS criteria for physical, health or environmental hazard classes are classified as non-hazardous. Some hazardous chemicals may also be diluted to concentrations below the criteria for classification as hazardous. These chemicals must be labelled with the following information:

1. chemical name
2. concentration (if applicable)
3. the words “non-hazardous” (or another agreed identifier such as a green label or green adhesive dots).

It is also considered good practice to label the chemical with the name of the person who prepared the chemical or sample as appropriate.

### 2.7 ADG Code Class Labels

Australian Code for the Transport of Dangerous Goods by Road and Rail ([*ADG Code*](https://infrastructure.gov.au/transport/australia/dangerous/dg_code_7e.aspx)) Class labels have been retained for use when transporting chemicals and for the placarding of hazardous chemical storage depots. See [Appendix 1](#_5_Appendix_1) for a Comparison of Hazard Pictograms and ADG Code Class Labels.

## **3 Further Information**

SafeWork NSW, [Labelling of workplace hazardous chemicals code of practice](http://www.safework.nsw.gov.au/__data/assets/pdf_file/0016/50083/Labelling-of-workplace-hazardous-chemicals-code-of-practice-SW08161-0316-313937.pdf) (April 2016)

Safe Work Australia, [Understanding Hazardous Chemical Labels](http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/understanding-hazardous-chemical-labels)

Safe Work Australia, [Classification and labelling of workplace hazardous chemicals poster](http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/classification-labelling-poster)

## **4 Document Control**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date Released** | **Approved by** | **Amendment** |
| 1 | Sept 2016 | Associate Director, WHS | Original |

## **5 Appendix 1 – Comparison of hazard pictograms with ADG code class labels**

| **Hazard Pictograms** | **GHS Hazard** | **Dangerous Goods class labels (pictograms)** | **Dangerous goods classes** |
| --- | --- | --- | --- |
| Image of GHS exploding bomb pictogram | Explosives  Self-reactives  Organic peroxides | Image of explosive Division 1 class labelImage of explosive Division 1.4 class labelImage of explosive Division 1.5 class labelImage of explosive Division 1.6 class label | Explosive |
| Image of GHS flame pictogram | Flammables  Self-reactives  Pyrophorics  Self-heating  Emits flammable gas in contact with water  Organic peroxides | Image of flammable liquid class labelImage of flammable solid class labelImage of spontaneously combustible class labelImage of dangerous when wet class label  Image of flammable gas class labelImage of organic peroxide class label | * Flammability (Liquid, Solid or Gas) * Pyrophoric, * Emits Flammable Gas * Organic Peroxide |
| Image of GHS flame over circle pictogram | Oxidisers | Image of oxidizing agent class labelImage of oxidizing gas class label | * Oxidiser * Oxidising gas |
| Image of GHS gas cylinder pictogram | Gases under pressure | Image of non-flammable non-toxic gas class labelImage of flammable gas class labelImage of oxidizing gas class labelImage of toxic gas class label | Non-toxic non-flammable gas, flammable gas, oxidising gas, toxic gas |
| Image of GHS skull and crossbones pictogram | Acute toxicity | Image of acute toxicity class labelImage of acute toxic gas class label | * Acute toxicity * Acute Toxic gas |
| **Hazard Pictograms** | **GHS Hazard** | **Dangerous Goods class labels (pictograms)** | **Dangerous goods classes** |
| Image of GHS exclamation mark pictogram | Acute toxicity  Skin irritants  Eye irritants  Skin sensitisers | No equivalent |  |
| Image of GHS health hazard pictogram | Carcinogens  Respiratory sensitisers  Reproductive toxicants  Target organ toxicants  Germ cell mutagens | No equivalent |  |
| Image of GHS corrosion pictogram | Eye corrosion  Skin corrosion  Corrosive to metal | Image of corrosive class label | Corrosive to metals |
| Image of GHS environment pictogram | Aquatic toxicity.  Not covered within the scope of workplace hazardous chemicals requirements | Image of GHS environment pictogram | Environmental  hazard |
| No equivalent hazard pictogram |  | Image of miscellaneous dangerous goods class label | Miscellaneous dangerous goods |
|  |  |  |  |
| Not covered within the scope of workplace hazardous chemicals requirements | | Image of infectious class label | Infectious |
| Not covered within the scope of workplace hazardous chemicals requirements | | Image of radioactive class label | Radioactive |

1. IUPAC name – the chemical name recommended by the International Union of Pure and Applied Chemistry [↑](#footnote-ref-1)
2. CAS name – the chemical name recommended by the Chemical Abstracts Service, Columbus, Ohio, USA [↑](#footnote-ref-2)
3. Safe Work Australia [Understanding hazardous chemical labels](http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/707/Understanding_Labels_for_Hazardous_Chemicals.pdf) [↑](#footnote-ref-3)
4. Fig 2 – 8 are from SafeWork NSW [*Labelling of workplace hazardous chemicals code of practice*](http://www.safework.nsw.gov.au/__data/assets/pdf_file/0016/50083/Labelling-of-workplace-hazardous-chemicals-code-of-practice-SW08161-0316-313937.pdf) [↑](#footnote-ref-4)
5. A chemical supplied commercially to another workplace is not defined as a research chemical or sample for analysis (SafeWork NSW [*Labelling of workplace hazardous chemicals code of practice*](http://www.safework.nsw.gov.au/__data/assets/pdf_file/0016/50083/Labelling-of-workplace-hazardous-chemicals-code-of-practice-SW08161-0316-313937.pdf)*)* [↑](#footnote-ref-5)
6. See [*National Code of Practice for the Labelling of Workplace Substances*](http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/cp1994labellingofsubstances) [NOHSC:2012(1994)] [↑](#footnote-ref-6)