*This document is under review, if you have any input, please email safety@unsw.edu.au.

# HS429 Labelling of Hazardous Chemicals Guideline

## Introduction

The purpose of this guideline is to ensure that hazardous chemicals are properly labelled so that the substances can be identified and used safely. This Guideline applies to all UNSW staff and students (and visiting staff and students) who work with hazardous chemicals.


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## 1. Scope

These labelling requirements do not extend to a consumer product which is also a hazardous chemical if it is to be used in the workplace in a quantity and way that is consistent with household use (e.g., dishwashing detergent) and incidental to the work being undertaken.

The **Globally Harmonised System (GHS)** for classification and labeling of chemicals is being gradually introduced to Australia and will become mandatory on 1 January 2017. Refer to the GHS fact sheet for further information.

Chemical suppliers are allowed to maintain the existing classification system for their labels and Safety Data Sheets until 1 January 2017. For this reason, labelling in accordance with the NOHSC National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012 (1994)] is still valid. Otherwise labels should comply with the Worksafe NSW Labelling of workplace hazardous chemicals code of practice.

CRICOS Provider Code 00098G

## 2. General guidance on Labelling

Overall responsibility for ensuring legally compliant labels on containers of hazardous chemicals rests with chemical manufacturers, suppliers and importers (clause 335 of WHS Regulation). Specifications are outlined in Schedule 9 of WHS Regulation: Part 3: Correct Labelling and summarized in 3.1 below.

All new chemicals purchased after the 1 January 2017 MUST have a GHS compliant label. However, any legacy chemicals which were already labelled in accordance with the National Occupational Health and Safety Commission (NOHSC) do not require re-labeling. Any legacy chemicals which **do not** have an NOHSC compliant label must either be disposed of OR stored in a separate locked storage facility until re-labelled.

### 2.1. Information required on a Label – Manufacturer's/Importer's responsibility

The complete set of information that is required on a GHS compliant label includes the following:

- Product identifier (full name, UN number, CAS number as applicable)
- Name, Address (Australian) and Telephone number of the manufacturer or importer
- The identify and proportion of each ingredient present (if it's a mixture)
- Hazard Class and Hazard Category as per GHS Classification
- Hazard Pictogram consistent with above classification
- Signal word
- Hazard Statements
- Precautionary Statements
- Any other information necessary to convey the hazards and precautions that haven't already been stated e.g., first aid and emergency procedures
- The expiry date (if applicable)

The example overleaf shows an example of a GHS compliant label (remodeled from the COP).

Product Identifier

*Full name*

Flammosol
**(Aliphatic hydrocarbon, toxicole)**

Identity and proportion of each chemical ingredient

**UN 1992**
Contains
Aliphatic hydrocarbons 95%
Toxicole 5%

**4L**

Hazard Class and Hazard Category

**Flammable Liquid:** Hazard Category 2
**Acute Toxicity_oral:** Hazard Category 3
**Skin corrosion / Irritation:** Hazard Category 2

**DANGER**

Signal Word

*{only 2 options i.e., Danger or Warning}*

Hazard Pictograms consistent with classification of the chemical

Highly flammable liquid and vapour
Toxic if swallowed
Causes skin irritation

Hazard Statements

Corresponding with Hazard Class and Category

Precautionary Statements:

<u>Response</u>

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

Rinse skin using plenty of soap and water.

**If skin irritation occurs get** medical advice / attention.

**If SWALLOWED**: Immediately call a POISONS CENTRE or doctor / physician.

Rinse mouth.

In case of fire: Use powder for extinction.

Precautionary Statements: <u>Preventative</u>

Keep away from sparks and open flames.

No smoking.

Keep container tightly closed.

Ground / bond containers and receiving equipment.

Use explosion proof electrical equipment. Use only non-sparking tools.

Take precautionary measures against static discharge.

Wear protective gloves and eye and face protection.

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

Wash hands thoroughly after handling.

Precautionary Statements: <u>Disposal</u>

Precautionary Statements:

<u>Storage</u>

Store locked up in a well-ventilated place. Keep cool.

Dispose of contents / container in accordance with jurisdictional regulations.

Name,

Australian address and phone of supplier

Refer to the Safety Data Sheet before use.
Made-up Chemical Company,
999 Chemical Street, Chemical Town, My State, Telephone 1300 000 000
www.madeup-chemical-company.com.au

<u>Here is another example of a 'GHS format' label downloaded from ChemAlert.</u>

**AMBER**

CHEMALERT REPORT
GHS Classification Summary Report

**IDENTIFICATION**

**PRODUCT NAME** METHANOL
**Supplier name** MERCK PTY LIMITED
**Address** 207 Colchester Road, Kilysth, VICTORIA, Australia, 3137
**Phone Number** 1800 335 571, (03) 9728 7600 **Emergency Number** (03) 9728 7600 or 1800 127 406 (A/hr)

**HAZARDOUS INGREDIENTS**

| Ingredient name | CAS number | Content |
|---|---|---|
| METHANOL | 67-56-1 | 100% |

**HAZARDS IDENTIFICATION**

**CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA**

**Classification**
Acute Toxicity: Inhalation: Category 3
Acute Toxicity: Oral: Category 3
Acute Toxicity: Skin: Category 3
Flammable Liquids: Category 2
Specific Target Organ Systemic Toxicity (Single Exposure): Category 1

**DANGER**

**Hazard**
**Highly flammable liquid and vapour.**
**Toxic if swallowed.**
**Toxic in contact with skin.**
**Toxic if inhaled.**
**Causes damage to organs.**

## 2.2. Label Elements

### 2.2.1. Signal Word

There are only 2 possibilities for Signal Words:
DANGER or WARNING depending on the classification of the chemical.

Only one signal word should be present on any one label.
If the signal word 'Danger' applies, then the signal word 'Warning' should not appear.

### 2.2.2. Hazard statements

A unique hazard statement is assigned to each hazard class and category. As with the previously used system of risk phrases, a hazard statement describes the nature of a hazard, including the degree of hazard, where appropriate. 'See the GHS Hazard table. All relevant hazard statements must appear on the label unless the statement duplicates or conflicts with another statement that is required or if the omission of the statement would not decrease the level of protection or information in relation to the hazard [see section 3.5].

### 2.2.3. Precautionary statements

Precautionary statements describe the recommended measures that should be taken to prevent or minimize adverse effects and replace the previously used system of 'Safety Phrases'. Each hazard class and category has a corresponding set of associated precautionary statements.

Precautionary statements are separated into the following categories:

**PREVENTION STATEMENTS**

*Actions to prevent an accident or exposure*

*e.g., Avoid breathing fumes*

**RESPONSE STATEMENTS**

*Actions to take following exposure*

*e.g., Rinse skin with water*

**STORAGE STATEMENTS**

*Instructions for safe storage*

*e.g., Store in a well-ventilated place*

**DISPOSAL STATEMENTS**

*How to dispose of the chemical*

*e.g., Dispose in accordance with local regulations*

A list of Precautionary Statements can be obtained from this weblink.

Not all precautionary statements relating to a particular hazard classification need to be used on the label provided the omission of the statement does not decrease the level of protection or information required to minimize the risk. As a guide, a maximum of between six and ten precautionary statements should appear on the label, depending on the nature and severity of the hazards.

An example where the omission of a precautionary statement on the label may be acceptable (and recommended) is where the use of personal protective equipment applies to different hazard categories for the same hazardous chemical.

For example, where the precautionary statements 'Wear face protection' and 'Wear gloves and face protection' are specified, then only the latter statement should appear on the label as it relates to the more stringent protective measures.

A combination of precautionary statements may be used to save label space, improve readability and to provide flexibility in the application of precautionary phrases.

#### 2.2.4. Hazard pictograms

The 9 GHS hazard pictograms and the hazard classes and categories which require their use can be obtained from this website.

All Hazard pictograms corresponding with the correct classification of the chemical must be included on the label unless the rules of precedence (see section 3.5) apply.

#### 2.2.5. Expiry Date

The expiry date for a chemical must be provided if the chemical could become unstable over time and pose additional risks.

### 2.3. Pipe work

Pipelines and pipework used for conveying hazardous chemicals must be identified. Methods include:

- signs adjacent to pipework;
- markings on the pipework, for example colour coding (refer to *AS 1345-1995 Identification of the contents of pipes, conduits and ducts)*
- schematic layouts displayed prominently.

### 2.4. For mixtures made up in laboratories

The identity of all hazardous ingredients in a mixture should be listed on the label as well as the proportion of the ingredients, expressed as a weight or volume percentage, of the overall mixture.
Hazardous ingredients should be listed in descending order by mass or volume.
Where ingredient proportions are commercially confidential, the following ranges should be used as an alternative:

- <10%
- 10- <30%
- 30 – 60%
- >60%

Where possible, the percentage composition should add up to or indicate a total of 100%, even if an estimate of non-hazardous ingredients needs to be provided.

If the ingredient is present at a concentration below the cut-off point for the chemical, then its details can be added to the % of non-hazardous ingredients.

### 2.5. Duplication or Redundancy and the Rules of Precedence

Duplication or redundancy of label elements may occur where a hazardous chemical meets the criteria for more than one hazard class or category. Duplication of an element may occur where:

- a specific precautionary statement applies to several hazard categories into which a particular chemical is classified
- an element may become redundant because a more stringent control applies to another hazard category (for example, the type of PPE required).

Duplicate or redundant information should not be included on a label. When a hazardous chemical meets the criteria for more than one hazard class or category (e.g., it is flammable and toxic), the potential exists for duplication or redundancy of certain label elements. Information should not be duplicated.
Certain rules of precedence will apply e.g.

- where a dangerous goods class diamond is required on the container to meet transport regulations, the equivalent hazard pictogram, as specified in the GHS, should not appear.
- if the skull and crossbones hazard pictogram apply, the exclamation mark hazard pictogram should not appear.
- if the corrosive hazard pictogram applies, the exclamation mark hazard pictogram should not appear if it is used to communicate skin or eye irritation.
- if the health hazard pictogram appears for respiratory sensitization, the exclamation mark hazard pictogram should not appear if it is used to communicate skin sensitization, or for skin or eye irritation.

See more information in Appendix E of the Code of Practice for Labelling.

## 3. Circumstances where reduced labelling requirements may apply

Under the WHS Regulations, reduced labelling is permitted for hazardous chemicals that are:

- supplied in small containers
- research chemicals or samples for analysis
- decanted or transferred
- not supplied to another workplace, and where the hazards are known to the workers using the chemical
- hazardous wastes
- classified into the explosives hazard class and are not explosive articles.

### 3.1. Small containers

**Clause 335 WHS Regulation, Part 3 of Schedule 9:** Where a hazardous chemical is packaged in a container that is too small to attach a label with the full information then the label must 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.

As much labelling information as is reasonably practicable should be included to convey the hazards on labels for small containers. Priority should be given to including information about the most significant hazards of the chemical.

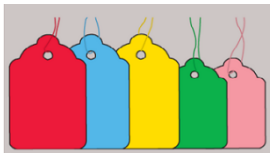
The most significant hazard will vary from chemical to chemical, and may be dependent on its physical form or how it will be used for example:

- *Information about inhalation risks may be considered more significant for a paint to be applied by spray gun rather than brush.*
- *information relating to dermal toxicity may be considered more significant for a chemical packaged in an ampoule (where spillage could occur) than if it were packaged in a ready-to-use syringe.*

For hazardous chemicals with multiple hazard categories, the most stringent set of precautionary statements should be selected. This is appropriate for situations where rapid action or response may be crucial following accidental exposure, and therefore, information relating to these actions should be included in preference to non-critical information.

Where certain hazard or other information has been omitted from the label, then it is recommended that alternative means for communicating the information should be used. The complete set of hazard and other information may be

included on an outer box (for example for a box containing several very small ampoules), a swing tag or insert, or a leaflet inside a box.



### 3.2. Research chemicals or samples for analysis

**Clause 335 of WHS Regulation, Part 3 of Schedule 9:** If a hazardous chemical is used for research purposes only or is a sample for analysis, the label must, 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.

The product identifier can be either: the actual name of the chemical, a recognised abbreviation or acronym; or a chemical formula, structure or reaction components.

Where a research chemical or sample for analysis cannot be identified this should be indicated clearly on the label. Labels for research chemicals or samples for analysis should include as much hazard information as possible, based on the identity and the known or suspected hazards.

If labelling the container is impractical due to its size or the conditions under which it is used, other methods of providing the information can be used, for example a secure swing tag, a sign attached to supporting apparatus or labelling an outer container.

For example, for a rack of test tubes, rather than label each individual test tube containing the same hazardous chemical, you may attach a label to the rack using a swing tag.

### 3.3. Decanted or transferred hazardous chemicals

**Clause 335 of WHS Regulation, Part 3 of Schedule 9:** If a hazardous chemical has been decanted or transferred from the container in which it was packed and it will not be used immediately or it is supplied to someone else, the label must, 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.

*Decant in this context* means to transfer a hazardous chemical from a correctly labelled container to another container within a workplace. Such a container may range from a small flask in a research laboratory to a large vessel that is used to contain reaction components prior to use in a mixing or reaction process.

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

A decanted hazardous chemical can only be considered to be used immediately in situations where:

- it is not left unattended by the person who decanted it.
- the decanted hazardous chemical is used only by a person present at the decanting process.
- the container is subsequently rendered free from any hazardous chemical immediately after use, so the container is in the condition it would be in if it had never contained the chemical.

### 3.4. Hazardous chemicals with known hazards that are not supplied to another workplace

**Clause 335 WHS Regulation, Part 3 of Schedule 9:** If a hazardous chemical is <u>not</u> being supplied to another workplace and the hazards associated with the chemical are known to the workers involved in using, handling or storing the chemical, then the label must, at a minimum, be written in English and include the following:

- the product identifier, and
- a hazard pictogram or hazard statement that is consistent with the correct classification of the chemical.

The rationale for reduced labeling requirements in this case is that the workers involved in its handling have sufficient knowledge of the associated hazards. However, the label should communicate enough information on the hazards as necessary to ensure its safe use.

### 3.5. Hazardous waste products

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

**Clause 335 WHS Regulation, Part 3 of Schedule 9:** If it is reasonably likely that a waste product is a hazardous chemical, then the label on the container of the hazardous waste must be written in English and at a minimum, include the following:

- the product identifier.
- the name, Australian address, and business telephone number of either the manufacturer or the importer, (if the waste was generated in a UNSW laboratory, then waste generator's contact details should be used); and
- a hazard pictogram and hazard statement that is consistent with the correct classification of the chemical.

In this case the product identifier may be a more generic title for example:

- chlorinated solvent waste.
- flammable waste.
- chromium VI waste.
- heavy metal waste.

Labels for hazardous wastes should include as much hazard information as reasonably practicable based on what is known about the identity and any suspected hazards. The label of any hazardous wastes should also include, where possible, the following information:

- the identity of any known or likely hazardous constituents or impurities and their proportions (for example, 'contains chromium VI, 5%', or 'may contain trace levels of organic peroxides').
- relevant precautionary statements.
- relevant first aid and safety directions.
- any other information that may assist identification of the hazardous waste and its associated hazards.

If every reasonable attempt has been made to identify and classify the chemical waste but it has been unsuccessful, you should clearly indicate this on the label.

Label formats that can be used are available for downloaded from the WHS website. Local areas can add their own specific details. Download as follows:
HS429a Example of label for ACID waste
HS429b Example of label for BASE/ALKALI waste
HS429c Example of label for Flammables (halogenated)
HS429d Example of label for Flammables (non-halogenated)
HS429f Example of label for Toxic waste
HS429e NON HAZARDOUS WASTE

### 3.6. Explosives, dangerous goods for transport or Nanomaterials:

Further details can be obtained in section 3.6/3.7/3.8 of the COP for labeling of workplace hazardous substances if a hazardous chemical belongs to any one of the following:

a. Hazardous chemicals classified in the explosives hazard class
b. Hazardous chemicals that are dangerous goods packaged for transport
c. Products containing nanomaterials

## 4. Labelling design and layout

The label must be:

- written in English.
- of a size large enough to contain all of the relevant information.
- easily visible and legible within the workplace.
- appropriate to the size of the container.
- firmly secured to the container.
- durable so as to remain legible for the lifetime of the chemical in use/storage.

**Orientation and size of label elements**

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

| 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 |

Refer to the Australian Dangerous Goods Code for marking requirements for dangerous goods being transported.

Pictograms are available from this United Nations GHS Pictograms website and can be saved and scaled in size to suit your container size.

## 5. Labelling for Non-Hazardous Chemicals

Some chemicals are classified as non-hazardous because they have not met any of the criteria in the physical, health or environmental hazard classes. Similarly, some chemicals which start out as being hazardous have been diluted to below the criteria for classification as hazardous. Such chemicals are still required to be labelled. The following information must appear on such labels:

- Chemical Name
- Concentration (if applicable e.g., 0.3% hydrochloric acid)
- The words 'NON-HAZARDOUS' or some other agreed (and communicated to users) code to distinguish the substance as non-hazardous e.g., green sticky dots or a green label.

The name of person or research group and date may also be added

## 6. Making up a GHS label for Mixtures

- Obtain GHS information (e.g., hazard classes and category to which the chemical belongs) on each ingredient at the concentration they are present at in the mixture. This can be done by either looking up the ingredient on any of the web resources listed in section 9 - Appendix 2 particularly the weblinks numbered 3 to 6 OR
- Using the existing classification for each ingredient (e.g., if the chemical has been classified under the NOHSC criteria or the ADG criteria) and then use the converter in web reference 11 [appendix 2] to enable a translation to the GHS system. E.g., if the chemical was classified as 'Very Toxic and had Risk Phrases R26/R27/R28 associated with it, input this information into the converter table and the corresponding hazard class, pictogram and hazard statements can be obtained.
- Once the information for each ingredient has been obtained the rules of precedence can be applied as detailed in section 3.5 to select the most appropriate hazard pictograms and hazard statements to go onto the label for the mixture.

### 6.1. Concentration cut off points

Many of the weblink references included in section 9 (appendix 2) list the concentration cut offs for ingredients in the same way as the Australian HSIS database. However, if the specific concentration cut off is not available for a chemical then the generic concentration cut-off points based on the hazard classification for that chemical can be used. These are provided in the official GHS publication - See Chapter 3: Health Hazards. Some of these tables have been replaced under the WHS Regulation in Schedule 6. In Australia the cut off points listed in the WHS Regulation should be used instead of those in these GHS tables.

- Chapter 3 of the GHS publication is divided into the following:

a) 3.1 Acute toxicity.
b) 3.2 skin corrosion – see tables 3.2.3 and 3.2.4 for concentration cut offs.
c) 3.3 serious eye damage/ eye irritation see tables 3.3.3, 3.3.4 and 3.3.5.
d) Respiratory or skin sensitiser -see tables 3.4.5 [however in WHS Regulation Schedule 6 this table has been replaced. See Appendix 1 of this guideline].
e) Germ cell mutagenicity See table 3.5.1 of the GHS text.
f) Carcinogens table 3.6.1 in GHS but replaced by table 7 in WHS Regulation see Appendix 1 of this guideline.
g) Reproductivity Toxicity See table 3.7.1 in GHS but replaced by Table 8 in WHS Regulation – see Appendix 1 of this guideline.
h) Specific Target Organ Toxicity – single exposure: see table 3.8.2 in GHS but replaced by Table 9 in WHS Regulation – see Appendix 1 of this guideline.
i) Specific Target Organ Toxicity – repeated exposure see Table 3.9.3 GHS but replaced by Table 10 in WHS Regulation – see Appendix 1of this guideline.

## 7. Creating a 'Custom Product' on ChemAlert

Previously the ability to print a label only exisited for any substance on the ChemAlert database if a Safety Data Sheet for that substance was also available. However if you are making up your own mixture for which a SDS does not exist, you may now use the 'Custom Product' function in ChemAlert. This will enable you to create your own new product, name it and assign relevant health and safety information to it (in accordance with the information from the SDS for each ingredient in your mixture). Once this custom product is on the system you can then print your label in the usual manner. See 'Create a custom product' on the HS website in the Chemical section.

## 8. Acknowledgements

Work Health and Safety Act 2011 (nsw.gov.au)
Work Health and Safety Regulation 2017 (nsw.gov.au)
List of codes of practice | SafeWork NSW

## Appendix A: Definitions

**Research Chemical:** 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 analysis or research. A chemical that is supplied commercially to another workplace is not included under the meaning of research chemical or samples for analysis under any circumstances.

## Appendix 1: CLASSIFICATIONS OF MIXTURES – GENERIC TABLES from the GHS:

GHS for Classification and Labelling of Chemicals *(the Purple book)*

**Table 3.2.3**: Concentration of ingredients of a mixture classified as Skin Category 1, 2 or 3 that would trigger classification of the mixture as hazardous to skin (Category 1, 2 or 3)

| Summary of ingredients classified as: | Concentration triggering classification of a mixture as: | | |
|---|---|---|---|
| | Skin corrosion | Skin Irritant | |
| | Category 1 (see note below) | Category 2 | Category 3 |
| Skin Category 1 | ≥ 5% | ≥ 1% but < 5% | |
| Skin Category 2 | | ≥ 10% | ≥ 1% but < 10% |
| Skin Category 3 | | | ≥ 10% |

**Table 3.2.4**: Concentration of ingredients of a mixture for which the additivity approach does not apply, that would trigger classification of the mixture as hazardous to skin and eyes

| Ingredient | Concentration | Mixture classified as: | Mixture classified as: |
|---|---|---|---|
| Acid with pH ≤ 2 | ≥1% | Skin Category 1 | Eye Category 1 |
| Base with pH ≥ 11.5 | ≥ 1% | Skin Category 1 | Eye Category 1 |
| Other corrosive (Category 1) ingredients for which additivity does not apply | ≥1% | Skin Category 1 | Eye Category 1 |
| Other irritant (Category 2/3) ingredients for which additivity does not apply, including acids and bases | ≥3% | Skin Category 2 | Eye Category 2 |

**Table 3.3.3**: Concentration of ingredients of a mixture classified as **Skin Category 1 and/or Eye Category 1 or 2** that would trigger classification of the mixture as hazardous to the eye (Category 1 or 2)

| Sum of ingredients classified as: | Concentration triggering classification of a mixture as: | |
|---|---|---|
| | Irreversible eye effects | Reversible eye effects |
| | Category 1 | Category 2 |
| Eye or Skin Category 1 | ≥ 3% | ≥ 1% but < 3% |
| Eye Category 2/2A | | ≥ 10% |

Table **3.5.1** Cut- off values / concentration limits of ingredients of a mixture classified as **germ cell mutagens** that would trigger classification of the mixture

| Ingredient classified as: | Cut off / concentration limits triggering classification of a mixture as: | | |
|---|---|---|---|
| | Category 1 mutagen | | Category 2 mutagen |
| | Category 1A | Category 1B | |
| Category 1A mutagen | ≥ 0.1% | | |
| Category 1B mutagen | | ≥ 0.1% | |
| Category 2 mutagen | | | ≥ 1.0% |

Note: The cut-off values / concentration limits in the table apply to solids and liquids (w/w units) as well as gases (v/v units).

**Classification of Mixtures Tables from Schedule 6 of the WHS Regulation**

The tables below replace the tables in the GHS system for their respective hazard categories

**Table 6.1: Classification of mixtures containing respiratory or skin sensitisers**

| Ingredient Classification | Mixture Classification | | |
|---|---|---|---|
| | Skin Sensitiser Category 1 | Respiratory Sensitiser Category 1 | |
| | All physical states | Solid/Liquid | Gas |
| Skin Sensitiser Category 1 | ≥ 1.0% | | |
| Skin Sensitiser Sub-category 1A | ≥ 0.1% | | |
| Skin Sensitiser Sub-category 1B | ≥ 1.0% | | |
| Respiratory Sensitiser Category 1 | | ≥ 1.0% | ≥ 0.2% |
| Respiratory Sensitiser Sub-category 1A | | ≥ 0.1% | ≥ 0.1% |
| Respiratory Sensitiser Sub-category 1B | | ≥ 1.0% | ≥ 0.2% |

**NOTE**: Table 6.1 replaces table 3.4.5 on the GHS, pg. 151.

**Table 6.2: Classification of mixtures containing carcinogens**

| Ingredient Classification | Mixture Classification | |
|---|---|---|
| | Category 1 Carcinogen | Category 2 Carcinogen |
| Category 1 Carcinogen | ≥ 0.1% | |
| Category 2 Carcinogen | | ≥ 1.0% |

**NOTE 1**: The concentration limits in Table 8 apply to solids and liquids (w/w units) and gases (v/v units).
**NOTE 2**: Table 6.2 replaces table 3.6.1 in the GHS, pg. 166.

**Table 6.3: Classification of mixtures containing reproductive toxicants**

| Ingredient Classification | Mixture Classification | | |
|---|---|---|---|
| | Category 1 Reproductive Toxic. | Category 2 Reproductive Toxic. | Effects on or via lactation |
| Category 1 Reproductive Toxicant | ≥ 0.3% | | |
| Category 2 Reproductive Toxicant | | ≥ 3.0% | |
| Effects on or via lactation | | | ≥ 0.3% |

**NOTE 1**: The concentration limits in Table 9 apply to solids and liquids (w/w units) and gases (v/v units).
**NOTE 2**: Table 6.3 replaces table 3.7.1 in the GHS, pg. 180.

**Table 6.4: Classification of mixtures containing specific target organ toxicants (STOT) single exposure**

| Ingredient Classification | Mixture Classification | |
|---|---|---|
| | Category 1 | Category 2 |
| Category 1 STOT Single Exposure | ≥ 10% | ≥1.0% but <10% |
| Category 2 STOT Single Exposure | | ≥ 10% |

NOTE 1: The concentration limits in Table 10 apply to solids and liquids (w/w units) and gases (v/v units).

**NOTE 2**: Table 6.4 replaces table 3.8.2 on the GHS, pg. 192.

**Table 6.5: Classification of mixtures containing specific target organ toxicants (STOT) repeat exposure**

| Ingredient Classification | Mixture Classification | |
|---|---|---|
| | Category 1 | Category 2 |
| Category 1 STOT Repeat Exposure | ≥ 10% | ≥1.0% but <10% |
| Category 2 STOT Repeat Exposure | | ≥ 10% |

**NOTE 1**: The concentration limits in Table 11 apply to solids and liquids (w/w units) and gases (v/v units).

**NOTE 2**: Table 6.5 replaces table 3.9.3 on the GHS, pg. 203.

## Appendix 2: Web References

**……to assist with classification and finding cut off concentrations**

1. UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
   For GHS classification and criteria
   http://www.unece.org/trans/danger/publi/ghs/ghs_rev04/04files_e.html

2. HSIS : (Hazardous Substances Information System) Australia
   For information on substances already classified in accordance with the Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004] 3rd Edition

3. European Chemicals Agency ECHA
   For information on chemicals classified in accordance with the GHS for those classes and categories captured by European regulations (refer to Annex I).
   http://echa.europa.eu/information-on-chemicals/cl-inventory-database

4. CCID (Chemical Classification and Information Database) : New Zealand
   For information on chemicals classified in accordance with the GHS under the Hazardous Substances and New Organisms (HSNO) regulations.
   https://epa.govt.nz/database-search/chemical-classification-and-information-database-ccid/

5. CSI (Chemical Sampling Information): United States
   Hazard data on a large number of chemical substances that may be encountered in industrial hygiene investigations
   https://www.osha.gov/dts/chemicalsampling/toc/toc_chemsamp.html

6. eChemPortal : OECD
   Information on physical and chemical properties, environmental fate and behaviour, ecotoxicity and toxicity of substances. Classification according to GHS provided when available
   https://www.echemportal.org/echemportal/

7. UN Model Regulations (transport of dangerous goods) : UN
   For Internationally agreed classification criteria for dangerous goods. Does not contain information for health hazards except acute toxicity categories 1, 2 and 3
   http://www.unece.org/trans/danger/danger.html

8. Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
   For Australian classification criteria for dangerous goods. Does not contain information for health hazards except acute toxicity categories 1, 2 and 3
   https://www.ntc.gov.au/codes-and-guidelines/australian-dangerous-goods-code

9. GESTIS – Substance Database : Germany
   Information for the safe handling of hazardous chemicals at work (health effects, necessary protective measures, first aid), and on physical and chemical properties
   http://www.dguv.de/ifa/GESTIS/GESTIS-Internationale-Grenzwerte-f%C3%BCr-chemische-GESTIS - database on hazardous substances

10. GHS Converter website
    A European resource which helps translate from existing hazard classifications into the GHS system.
    http://ghs.dhigroup.com/PagesGHS/TranslationTool.aspx

## Appendix B: Version control

| Version | Authorised by | Approval Date | Effective Date | Sections modified |
|---|---|---|---|---|
| 0.1 | Director, Human Resources | 16/12/2010 | 16/12/2010 | New document released for consultation |
| 1.0 | Director, Human Resources | 16/12/2010 | 16/12/2010 | No changes from consultation process |
| 1.1 | Director, Human Resources | 16/12/2010 | 16/12/2010 | Update in accordance with University template. |
| 2.0 | Director, Human Resources | 1/2/2013 | 1/2/2013 | All sections changed due to the incorporation of the GHS system for the labeling of hazardous chemicals being incorporated into the NSW WHS Regulation 2011<br>Updated Branding Logo in accordance with UNSW Branding Guidelines.<br>Modified the document identifier from OHS to HS in accordance with WHS legislation review |
| 2.1 | Director, Human Resources | 8/7/2013 | 8/7/2013 | New section added to incorporate requirements for labeling of non-hazardous chemicals (section 6) |
| 2.2 | Director, UNSW Safety and Sustainability | 30 April 2014 | 30 April 2014 | Reviewed for administrative updates |
| 2.3 | Director, UNSW Safety and Sustainability | 30 March 2016 | 30 March 2016 | Section 3: Qualify GHS label requirements for legacy chemicals<br>Section 4.5 provide links to chemicals waste label templates |
| 3.0 | Director, Risk & Safety Management | 8 August 2022 | 8 August 2022 | Reviewed for administrative updates, template updated and removed from Governance |

Updates to this document

Any suggestions, recommendations or updates to this document should be emailed to safety@unsw.edu.au with the email header stating *GUIDELINES UPDATE HS429*.