

ASSIST INFORMATION SHEET:

Labels for school science chemicals

In school science departments, many chemicals and solutions are sub packaged into small bottles and jars for use in the classroom situation. This requires having special labels to suit the size of the container that complies with legislation required for hazardous chemicals.

The model Work Health and Safety (WHS) laws have currently been adopted by every state and territory, except for Victoria and Western Australia. The Australian Capital Territory has not yet adopted the chemical regulations. The model WHS Regulations have referenced into them the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). This is an internationally agreed system developed by the United Nations.

There is a phase-in or transitional time for the implementation of this system, whereby the NOHSC labelling system can be used up until 31 December 2016. It is recommended that teachers and technicians who are responsible for labelling school science chemicals become familiar with the GHS requirements during the transition period and take advantage of any training sessions on offer. Science ASSIST will work towards improving the resources and support available to schools regarding labels for the implementation of the GHS.

Background information

Safe Work Australia is an independent Australian Government Statutory body that coordinates and develops national policy and strategies to improve work health and safety and workers' compensation in Australia. In order to achieve harmonisation (nationally consistent regulatory framework across all Australian jurisdictions) of the Work Health and Safety laws across Australia, Safe Work Australia has developed a model Act, model Regulations and model Codes of Practice.

These laws only become legally binding when they are formally enacted or passed by parliament in each jurisdiction. The Commonwealth and each state and territory is responsible for regulating and enforcing the laws in their jurisdiction. At the time of this information sheet, these model laws have been implemented in every jurisdiction except Victoria and Western Australia where pre-existing local health and safety laws continue to apply, and the WHS chemical regulations have not yet been adopted in the Australian Capital Territory. For jurisdictional progress on the model work health and safety laws see <http://www.safeworkaustralia.gov.au/sites/swa/model-whs-laws/pages/jurisdictional-progress-whs-laws>

The model WHS Regulations have referenced into them the 3rd Revised Edition of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). This is an internationally agreed system published by the United Nations and sometimes referred to as 'the purple book'.

We are currently in the middle of a transition period, where manufacturers and importers of chemicals are able to continue to use the NOHSC labelling system for workplace hazardous substances and dangerous goods up until 31 December 2016. This applies for chemicals which have been classified according to the Approved Criteria for Classifying Hazardous Substances and the ADG Code. For more detailed information regarding the Labelling of workplace hazardous

chemicals see <http://www.safeworkaustralia.gov.au/sites/swa/whs-information/hazardous-chemicals/labelling/pages/labelling>

Under the NOHSC system the terms 'Hazardous Substances' and 'Dangerous Goods' are used and under the GHS the term 'Hazardous Chemicals' is used.

For jurisdictions which have adopted the GHS-based system, up until the 31 December 2016 the following labelling documents apply for workplace chemicals. Either:

Hazardous Substances:

National Code of Practice for the Labelling of Workplace Substances [NOHSC: 2012 (1994)]

<http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/cp1994labellingofsubstances>

AND

Dangerous Goods:

Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code)

<http://www.ntc.gov.au/viewpage.aspx?Areald=35&DocumentId=1147>

OR

Hazardous Chemicals:

Model Code of Practice - Labelling of Workplace Hazardous Chemicals

<http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>

This code of practice should be used where the chemical has been classified according to the GHS, i.e. in conjunction with GHS-based safety data sheets.

After 31 December 2016 only the Model Code of Practice - Labelling of Workplace Hazardous Chemicals will apply for workplace chemicals in those jurisdictions which have adopted the model legislation.

The ADG Code will continue to apply to the transport of chemicals after the 31 December 2016. This means that the labelling on the outer packaging of the transport container will be compliant with the requirements of the ADG Code and the labelling on the inner package i.e. the chemical container will be compliant with either the NOHSC system or the GHS system (prior to 2017) and the GHS after 1 January 2017.

Note: In addition there are a range of other labelling requirements that may apply due to the complexity of the regulations that apply throughout Australia. For example, Agricultural and veterinary chemicals; Consumer and domestic chemicals (poisons); Therapeutic goods; and Dangerous goods during land transport.

<http://www.safeworkaustralia.gov.au/sites/swa/whs-information/hazardous-chemicals/labelling/pages/labelling>

Labelling information required for hazardous chemicals

This ASSIST Information Sheet is not a guide to producing labels suitable for the school science department, but a collation of relevant information as an interim measure until more detailed resources are developed.

It is recommended to download the reference document from the Safe Work Australia website in order to read the following excerpts in context which are taken from the 'Model Code of Practice - Labelling of Workplace Hazardous Chemicals'

<http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>

Under the WHS Regulations, schools have a responsibility to ensure that any hazardous chemical that is used, handled or stored at the workplace is correctly labelled in accordance with Schedule 9 of the WHS Regulations. (Section 1.3)

When chemicals are purchased, they will have the manufacturer's label and should already contain the minimum requirements as detailed in Section 2.1 (see below). However in school science departments, many chemicals and solutions are sub packaged or decanted into small bottles and jars for use by students in the classroom situation. The definition of decant in the Code of Practice is "to transfer a hazardous chemical from a correctly labelled container to another container within a workplace." (Section 3.3)

Schools need to ensure that these decanted containers are suitably labelled. Most schools have a subscription to a chemical management system that produces labels. However these are designed for use largely in industry, contain all the hazard and precautionary statements and when reduced in size for small containers, the font size is very difficult to read. Technicians who wish to produce labels which are completely satisfactory with respect to compliance, legibility and layout may need to use their own template for small containers.

There is provision in the Code of Practice for reduced labelling for decanted chemicals, however where the containers are used permanently for decanted chemicals they need to comply with the minimum requirements and the reduced labelling for small containers will apply (See below). The aim is to provide as much information on the hazards and safe use of the chemical on the label as possible.

Signal words, hazard and precautionary statements

The potential exists for duplication or redundancy of certain label elements where a hazardous chemical meets the criteria for more than one hazard class or category in the GHS. Duplicate or redundant information should not be included on a label. Rules of precedence of certain label elements and general guidance that should be used to determine when elements may be omitted from a label are provided in Appendix E. (See below). When deciding which information should be included in labels for small containers, schools need to make a judgement about which statements to include. Hazard and precautionary statement codes are for reference purposes only and should not be used on a label. (Section 2.4, see below)

Dimensions of text and pictograms

The text, hazard pictograms and other information on a label should be of a size and style that is easily legible and is appropriate to the size of the label and container. The minimum recommended text size, for a container less than 500mL, is 2.5mm (approximately size 8 font). (Section 4)

Pictograms vs Dangerous Goods diamonds

One aspect of the GHS, which has raised some concerns in schools is that the GHS has only one Flammables pictogram which replaces the six ADG diamonds corresponding to the six categories of flammable substances. Up to now, many schools have used the ADG codes to indicate the storage categories of flammable substances. The good news is that we can continue to use the ADG diamonds for the different categories of flammable substances; according to Chapter 2.4 of the Code of Practice, '*Class labels recommended for the transport of dangerous goods as specified in the ADG Code may be used instead of the relevant hazard pictograms specified in the GHS.*'

Science ASSIST will work towards improving the resources and support available to schools regarding labels for the implementation of the GHS. In the meantime the following excerpts from the Code of Practice are included below.

Excerpts from the Model Code of Practice - Labelling of Workplace Hazardous Chemicals <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>

'2.1 What information must be included on a label?

Regulation 335, Part 3 of Schedule 9

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

- *is written in English*
- *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, and*
- *the expiry date of the chemical, if applicable.'*

Safe Work Australia. 2011. *Labelling of Workplace Hazardous Chemicals – Code of Practice* <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>, p6.

'2.4 Label elements

The combination of label elements required on the label of a hazardous chemical is directly linked to its hazard classification. Label elements apply to classification endpoints or hazard categories and must be determined as specified in the GHS.

Appendix D includes tables listing all the elements that apply to each hazard class and category or division.

The potential exists for duplication or redundancy of certain label elements where a hazardous chemical meets the criteria for more than one hazard class or category in the GHS. Duplicate or redundant information should not be included on a label. Rules of precedence of certain label elements and general guidance that should be used to determine when elements may be omitted from a label are provided in Appendix E.

The signal word, hazard pictograms and hazard statements should be grouped together in a prominent position on the label, and located either immediately following or adjacent to the product identifier and chemical ingredients.

Signal words

Signal words are used to indicate the relative level of severity of a hazard. The GHS uses 'Danger' and 'Warning' as signal words. 'Danger' is used for a more severe or significant hazard, while 'Warning' is used for the less severe hazards.

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 on the label.

Signal words should be represented in bold and uppercase text.

Hazard statements

Hazard statements describe the nature of a hazard, including the degree of hazard, where appropriate. A unique hazard statement is assigned to each hazard class and category. The hazard statements and corresponding hazard class and category are provided in Appendix D. All relevant hazard statements must appear on the label. Where a hazard classification results in hazard statements with duplicate information, the information should only appear once, in line with the rules of precedence outlined in Appendix E.

Additionally Appendix D lists 12 non-GHS hazard statements that should be included on the label, where relevant.

A unique hazard statement code is assigned to each hazard statement. The hazard statement code is intended to be used for reference purposes only. It is not part of the hazard statement and should not be used to replace it or be included on the label.

Hazard statements should be represented in bold and sentence case text.

Precautionary statements

Precautionary statements describe the recommended measures that should be taken to minimise or prevent adverse effects resulting from exposure to, or improper storage or handling of, a hazardous chemical. Precautionary statements are assigned to each hazard class and category.

Precautionary statements are separated into five categories:

- Prevention statements refer to precautions to be taken to prevent an accident or exposure.
- Response statements refer to instructions in case of an accident.
- Storage statements refer to instructions for safe storage of the chemical.
- Disposal statements refer to appropriate disposal instructions.
- General statements for use as appropriate.

The precautionary statements that correspond to each hazard class and category are provided in Appendix D. Not all precautionary statements relating to a particular hazard classification need to be used on the label. 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.

Where a hazard classification results in duplicate precautionary statements, the information should only appear once in line with the rules of precedence outlined in Appendix E.

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

Related precautionary statements should be grouped together on a label to allow for ease of location. Precautionary statements should be printed in sentence case text.

A unique precautionary statement code is assigned to each precautionary statement. The precautionary statement code is intended to be used for reference purposes only. It is not part of the precautionary statement and should not be used to replace it or be included on the label.

The general precautionary statements refer to general precautionary measures to be taken, for example:

- *If medical advice is needed, have product container or label at hand.*
- *Keep out of reach of children.*
- *Read label before use.*

Unlike other precautionary statements, general precautionary statements are not linked to particular hazard classes or categories and their inclusion on labels of workplace hazardous chemicals is not mandatory.

Where general precautionary statements are used, they should be located in a prominent position on the label, for example adjacent to the product identifier. General precautionary statements should be printed in sentence case text.

Hazard pictograms

The GHS specifies nine hazard pictograms, having regard to physical, health and environmental hazards. These are provided in Appendix F of this Code.

Hazard pictograms must be included on the label in most cases. In some circumstances however, pictograms may be omitted from the label in line with the rules of precedence outlined in Appendix E. In all other cases, where pictograms are required, all the relevant hazard pictograms must be included on the label.

Hazard pictograms should be in the shape of a square set at an angle of 45° (i.e. diamond-shaped) on its point. The hazard pictograms should have a black symbol on a white background with a red border or frame of sufficient width to be clearly visible. Pictograms with a black border may also be used.

Class labels recommended for the transport of dangerous goods as specified in the ADG Code may be used instead of the relevant hazard pictograms specified in the GHS. Never use both in the same label. A comparison of the hazard pictograms as specified in the GHS and the ADG Code class labels are shown in Appendix G¹.

Safe Work Australia. 2011. *Labelling of Workplace Hazardous Chemicals – Code of Practice* <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>, p9–11.

¹ GHS pictograms can be downloaded from the GHS website at www.unece.org/trans/danger/publi/ghs/pictograms.html or via the GHS homepage at www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html.

Transport of Dangerous Goods class labels can be downloaded from the National Transport Commission website at <http://www.ntc.gov.au/viewpage.aspx?documentid=1313>

‘3.1 Small containers

Regulation 335, Part 3 of Schedule 9

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 the label must 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.’*

Safe Work Australia. 2011. *Labelling of Workplace Hazardous Chemicals – Code of Practice* <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>, p12.

‘3.3 Decanted or transferred hazardous chemicals

Regulation 335, 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.*

For the purposes of this Code, decant 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 a container is repeatedly used for decanting as part of normal work procedures or processes, a permanent label with all the general labelling information must be attached to the container. Permanently labelled containers must not be used to contain any other substances or mixtures than those specified on the label.’

Safe Work Australia. 2011. *Labelling of Workplace Hazardous Chemicals – Code of Practice* <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>, p14–15.

‘APPENDIX E – PRECEDENCE RULES OF LABEL ELEMENTS

Signal words

Where the signal word ‘Danger’ applies, the signal word ‘Warning’ should not appear concomitantly.

Hazard statements

Where hazard statements are required to be present on a label, then all of the assigned hazard statements must appear on the label except where:

- the statement duplicates or conflicts with another statement or other hazard information that is required on the label
- omission of the statement would not decrease the level of protection or information in relation to the hazards.

Precautionary statements

Where precautionary statements are required to be present on a label, then normally not more than six to ten precautionary statements are required, unless necessary to reflect the nature and the severity of the hazards. For example, precautionary statements can be omitted if:

- the statement duplicates or conflicts with another statement or other hazard information that is required on the label; and
- omission of the statement would not decrease the level of protection or information in relation to the hazards.

Any conflict that arises between precautionary statements that are present on labels may be resolved by modifying the statements. However, the new statement(s) must give equivalent levels of information or protection.’

Safe Work Australia. 2011. *Labelling of Workplace Hazardous Chemicals – Code of Practice* <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>, p81–82.

References

Safe Work Australia. 2011. *Labelling of Workplace Hazardous Chemicals – Code of Practice* <http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-hazardous-chemicals-cop>

United Nations Economic Commission for Europe (UNECE). 2009. *Globally Harmonized System of Classification and Labelling of Chemicals (GHS)*. http://www.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html