An introduction to the *GHS*

A new system for naming and labelling chemicals with their hazards is being introduced globally. This new system is known as the *Globally Harmonised System of Classification and Labelling of Chemicals (GHS)* and has been developed by the United Nations. The *GHS* will be integrated into chemical manufacturing and trade processes by Australia over the period January 2012 to December 2016.

What is the *GHS*?

The *GHS* introduces a new system of chemical hazard classification, labelling and safety data sheet requirements that enhances the protection of human health and the environment from hazardous chemicals. It does this by providing an international system of chemical hazard communication and a uniform way of classifying chemicals that makes it safer to recognise and trade in hazardous chemicals worldwide. The goal of the *GHS* is to identify the inherent hazards of chemical substances and mixtures, and to convey information about these hazards. The *GHS* is not intended to harmonize risk assessment procedures or risk management decisions.

The *GHS* system has been implemented in Australia under the new *Work Health and Safety Act 2011* and the *Work Health and Safety Regulation 2011*. The key requirements for hazardous chemical management are described in "Chapter 7 Hazardous Chemicals" of the *Work Health and Safety Regulation 2011*; and the specific naming, labelling and hazard requirements of the *GHS* are further described through the:

- Hazardous Chemicals Code of Practice 2003
- How to Manage Work Health and Safety Risks Code of Practice 2011
- Labelling of Workplace Hazardous Chemicals Code of Practice 2011
- Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice 2011

So what changes are occurring with the introduction of the *GHS*?

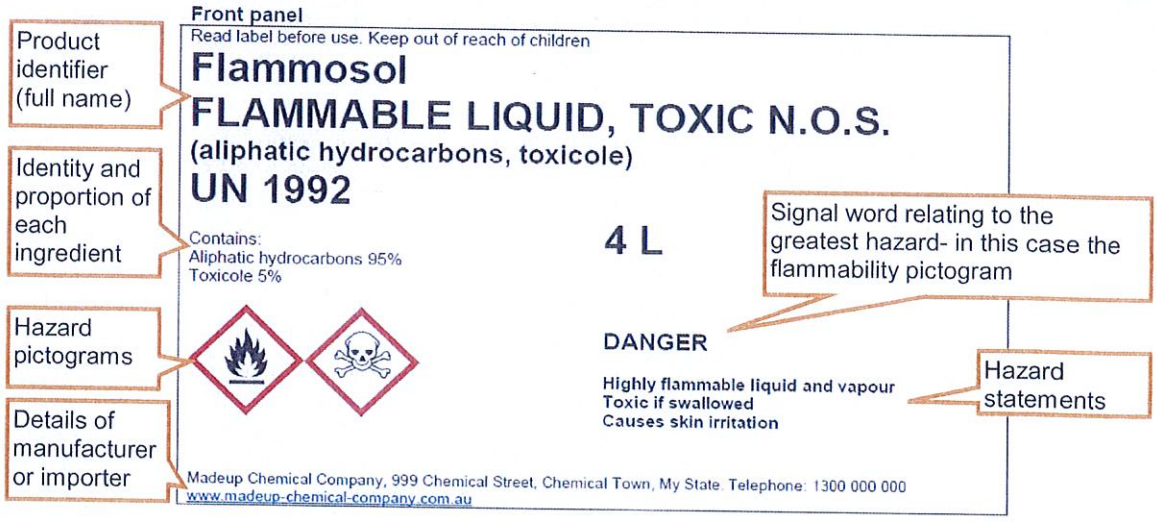
The changes for schools are minor as the *WHS Regulations 2011* largely apply to chemical manufacturers and suppliers, and schools are not suppliers. However, staff and students will need to become familiar with new labels, labelling requirements and changes in hazard classification. Currently, the Department of Education, Training and Employment (DETE) is updating all its documents to comply with these changes.

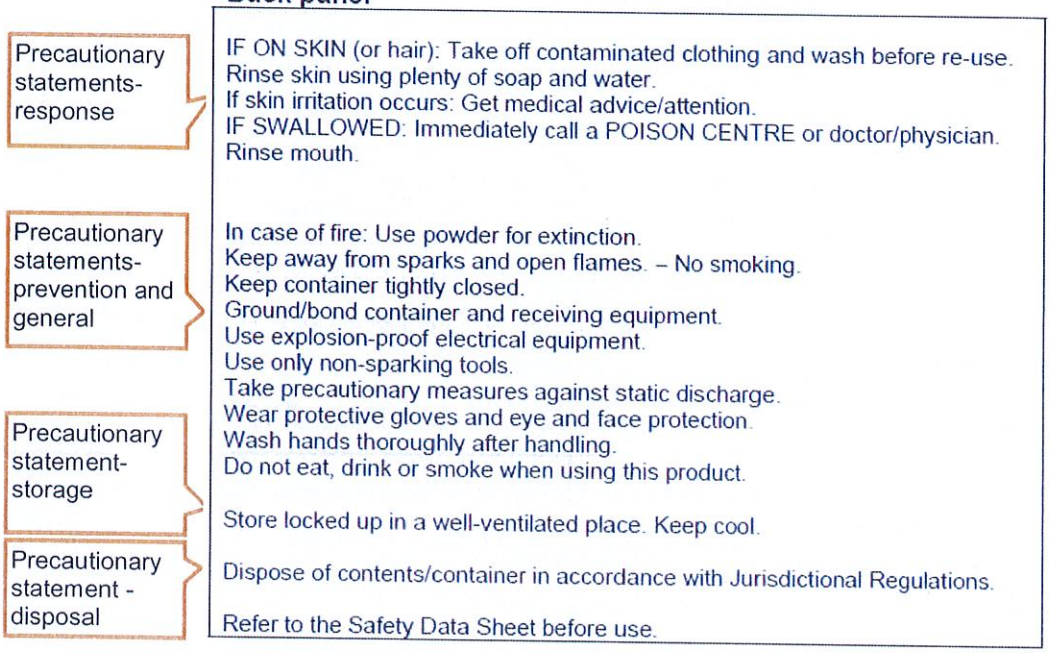
In the DETE workplace, it is expected that the *GHS* elements will be adopted over time, including *GHS* physical and health hazard criteria in line with the requirements of the WHS regulation 2011.

What's new?

From January 2012, schools will begin receiving chemicals labelled with the new hazard information and new *GHS* diamond-shaped pictograms that have the harmonized core information under the *GHS*.

The appearance of information on labels will change slightly. Appendix H in the *Labelling of Workplace Hazardous Chemicals Code of Practice 2011* describes the information contained on new labels and also gives specific examples of compliant labels suitable for use of decanted, transferred and diluted substances in the workplace. The labels may look similar to the example below:





Modified from: Labelling of Workplace Hazardous Chemicals Code of Practice 2011

A description of each key label element appears in the table below:

Hazard pictograms	These are printed in black on a white background within a red diamond frame. A black symbol inside the diamond represents a hazard class or hazard category according to the *GHS*
Signal words	A word (either DANGER or WARNING) used on a label to indicate to a label reader the relative severity level of a hazard, and to alert the reader to a potential hazard.
Hazard statements	A statement assigned to a hazard class or hazard category describing the nature of the hazards of a hazardous chemical including, if appropriate, the degree of hazard
Precautionary statements	A phrase that describes recommended measures to be taken to prevent or minimise the adverse effects of exposure to a hazardous chemical or the improper handling of a hazardous chemical. Statements cover general use, response and prevention actions, storage and disposal.

The new *GHS* Hazard Pictograms and Hazard Classes

The *GHS* hazard pictograms are the key hazard communication tool within the *GHS*. The *GHS* pictograms identify the hazard class that chemicals are grouped into and are shown below. Note that the *GHS* pictograms differ from the Dangerous Goods diamonds you are used to- some symbols are new, and they occur as a black picture in a red diamond with a white background.

GHS Pictograms and Hazard Classes		
 • Oxidizers	 • Flammables • Self reactives • Pyrophorics • Self-Heating • Emits flammable gas • Organic peroxides	 • Explosives (Divisions 1.1 to 1.4 only) • Self reactives • Organic peroxides
 • Acute toxicity (severe)	 • Corrosive to metals • Skin corrosion • Serious eye damage/eye irritation	 • Gases under pressure
 • Carcinogen • Respiratory sensitizer • Reproductive toxicity • Target Organ toxicity • Mutagenicity • Aspiration toxicity	 • Aquatic Toxicity (acute) • Aquatic Toxicity (chronic)	 • Irritant • Dermal sensitizer • Acute toxicity (harmful)

The *WHS Regulations 2011* now refers to hazard classes and hazard categories in accordance with the *GHS* rather than dangerous goods classes, categories and divisions. Appendix G in the *Labelling of Workplace Hazardous Chemicals Code of Practice 2011* provides a comparison of *GHS* hazard pictograms with the corresponding Dangerous Goods class diamonds. You will still see Dangerous Goods diamonds on outer packaging (e.g. box or drum) for the purposes of hazard identification for the transporting of dangerous goods.

As you become familiar with the *GHS*, you will notice that Chapter 7 of the *WHS Regulation 2011* (the Hazardous Chemicals part) does not apply to some hazard classes and categories that you have seen in the *Australian Dangerous Goods (ADG) Code of Practice 2008.* For example, environmental hazard classes Class 6.2, Class 7 and Class 9 dangerous goods are excluded. (Note that the *ADG7 Code of Practice* is the current ADG Code and that the *Dangerous Goods Safety Management Act 2001* is now **repealed** as it is now absorbed into the new *Work Health and Safety Regulation 2011* under *Chapter 7 Hazardous Chemicals*).

Safety Data Sheets

The Material Safety Data Sheets (MSDS) that you use for each chemical are now referred to as Safety Data Sheets (SDS) under the *WHS Regulation 2011*. Like the MSDS before them, an SDS describes the identity, the properties (chemical and physical properties, and health hazard and environmental hazard information), use, precautions for use, safe handling procedures and safe disposal procedures of a hazardous chemical. Their content and format is carefully prescribed and standardised so that information can be found under the same section in any part of the world.

Compliant SDS will be phased in over the *GHS* transition period of January 1 2012-December 31 2016 as new chemicals are manufactured. A manufacturer's SDS can be obtained from the manufacturer or supplier, or accessed via CHEMGOLD3 as they are updated by the chemical's manufacturer. You should **always** use a manufacturer's SDS for the hazard management of a chemical.

References:
Australian Safety and Compensation Council (2010). *GHS Information Sheet*. Australian Government.
United Nations Institute for Training and Research 2008. *Understanding the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). A companion guide to the Purple Book June 2008 Edition*, Geneva.

Frequently Asked Questions

What is the period for the implementation of the *GHS*?

Transition to the new *GHS* system will occur over a 5 year period from 1 January 2012 until 31 December 2016.

Why are we receiving chemicals from suppliers with new labels?

The Australian *WHS Regulation 2011* implements a new system of chemical hazard classification, labelling and safety data sheet requirements based on the United Nations' *Globally Harmonised System of Classification and Labelling of Chemicals* (the *GHS*). Suppliers are now required to label new supplies of chemicals so they are compliant with the *WHS Regulation 2011* (specifically Schedule 9, part 3). This means that chemicals provided by your supplier in the future will be correctly named and labelled in accordance with the *GHS*.

What do the GHS hazard pictograms look like?

There are three new *GHS* hazard pictograms. The remaining pictograms (shown earlier in this documents) are similar in appearance to the Dangerous Goods diamonds you have seen before. The difference now is that they appear in a red diamond with a white background.

Hazard Pictogram	GHS Hazard	Description
	Carcinogens Respiratory sensitisers Reproductive toxicants Target organ toxicants Germ cell mutagens	Indicates damage to genetic material and some high hazard substances that target specific organs
	Acute toxicity Skin irritants Eye irritants Skin sensitisers	Indicates some chemicals formally classed as harmful or irritant and includes skin sensitising chemicals and some low hazard substances that target specific organs. Some chemicals that were previously not classified as hazardous may now carry this symbol
	Gases under pressure	Gases under pressure will now display this symbol

What are my responsibilities in relation to labelling hazardous chemicals in my workplace?

I. Ensure that any hazardous chemical that is used, handled or stored at the workplace is correctly labelled (see the *Labelling of Workplace Hazardous Chemicals Code of Practice 2011* for guidance).

II. Ensure that a hazardous chemical is correctly labelled if the chemical is manufactured at the workplace; or transferred or decanted from the chemical's original container at the workplace.

III. Ensure, so far as reasonably practicable, that containers are correctly labelled while holding a hazardous chemical.

IV. Ensure that containers that are labelled for holding a hazardous chemical are used only for the use, handling or storage of the hazardous chemical.

(Note: Responsibilities II to IV do not apply if the hazardous chemical is used immediately after being put into the container **and** the container is thoroughly cleaned after the chemical has been used such that the container is in a condition as if it had never contained the chemical).

Do I have to change all the labels on my chemical stock to be compliant with the GHS?

Not immediately. It may in fact be beneficial to work through the transition period between systems by having the old symbols and classifications alongside the new ones until you become familiar with the *GHS*.

Do I have to use the new labels now when chemicals are used in the classroom?

Assuming the chemicals are not used immediately, a school is not a supplier so it does not technically need to label chemicals prepared for lessons at all. However, DETE's *Guidelines for Managing Risks with Hazardous Chemicals in DETE Workplaces* requires that good management practices are used to control risks in the workplace. It is **expected** therefore, that any stocks of decanted or diluted chemicals in the workplace will be correctly labelled with the required labelling elements using the new system.

I am not a supplier of chemicals so what labelling should I use?

Under the *WHS Regulation 2011*, 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.

In these situations, guidelines and examples for labelling hazardous chemicals are outlined in the *Labelling of Workplace Hazardous Chemicals Code of Practice 2011* and in DETE's *Guideline for Managing Risks with Chemicals in DETE Workplaces.* Despite these minimum expectations for labelling, in these situations, you should always aim to provide as much information on the hazards and safe use of the chemical on the label as possible.

Who is responsible for obtaining the SDS?

The *WHS Regulation 2011* requires the supplier to provide a current SDS for the product on the **first** supply. The *WHS Regulation 2011* also requires that if you don't have a safety data sheet for a hazardous chemical supplied to your workplace, you must obtain one from the supplier of the chemical **before** the chemical is used at the workplace. CHEMGOLD3 may be used to obtain a copy of the manufacture's SDS.

What happened to the Dangerous Goods Safety Management Act 2001?

The *Dangerous Goods Safety Management Act 2001* (*DGSM Act 2001*) has been repealed. It has now been absorbed into the *Work Health and Safety Regulation 2011* and its content modified in light of the *GHS*. The requirements for the management of hazardous chemicals are now described in *Chapter 7 Hazardous Chemicals* of the *WHS Regulation 2011*.

Do Dangerous Goods (DG) classifications still apply?

Yes. DG classifications still apply to the **transport** of chemicals by road or rail. The *Australian Dangerous Goods Code* (*ADG7*) sets out the requirements for transporting dangerous goods by road or rail. Some confusion regarding the *GHS* labelling of hazardous chemicals may occur for chemicals that are dangerous goods that are labelled to meet transport requirements. Class labels recommended for the transport of dangerous goods as specified in the *ADG7 Code* may be used instead of the relevant hazard pictograms specified in the *GHS but* **both should never be used on the same label**. The ADG7 may be accessed at http://www.ntc.gov.au/viewpage.aspx?documentid=01147 if you require further information.

Note that the *WHS Regulations 2011* refer to hazard classes and categories in accordance with the *GHS*, rather than dangerous goods classes, categories and divisions. A comparison of dangerous goods classifications under the *ADG7 Code* with those under the *GHS* is provided in Appendix G of the *Labelling of Workplace Hazardous Chemicals Code of Practice 2011*.

Do the new *GHS* symbols mean the same thing as the DG symbols?

No. The *GHS* system has redefined some of the hazards. This means that for some chemicals the labels may be vastly different. This does not mean that the substance has become more or less hazardous, but the way the hazard has been classified has changed. This makes it difficult to compare the *GHS* and *ADG* systems.

What happened to the harmful/irritant symbol?

The "X" symbol for HARMFUL and IRRITANT will not be used in the new system. These hazards have been absorbed within the *GHS* acutely toxic, corrosive or moderate hazard symbols depending on the type of hazard(s).

What has happened to the DG Class 6.2 (infectious substances), Class 7 (radioactive) and Class 9 (miscellaneous) dangerous goods symbols?

These DG Classes are not covered within the scope of workplace hazardous chemicals requirements. If labelling and identification of specific chemicals is required, then it occurs under the conditions of the repealed *DGSM Act 2001*.

Should the *GHS* system be used when I am teaching my classes?

Legally, the *GHS* system is now the approved system of chemical labelling and hazard classification. This system will become increasingly common in our everyday lives. To assist students with the transition from the dangerous goods system to the *GHS*, you should begin to integrate the *GHS* system into your work and curriculum as soon as reasonably practicable.

What about information in text books?

Existing text books and other curriculum resources will retain the old dangerous goods classification system. New publications, including exam papers will begin to use the *GHS* classification and labelling system. Obviously, there will be inconsistencies during the transition to the new system. These issues will be alleviated as people become familiar with the new labels, hazard classifications and definitions, and SDS documents. To assist with this transition, you should begin to integrate the *GHS* system into your work and curriculum as soon as reasonably practicable.

Do I still need to keep a hazardous chemical register under the *GHS*?

Yes. The *WHS Regulation 2011* requires that a register of hazardous chemicals at the workplace be prepared and kept up to date. The purpose of this register is to identify hazards associated with hazardous chemicals and provide information to manage their health and safety risks in the workplace. The register must be readily accessible to workers involved in using, handling or storing hazardous chemicals and to anyone else who is likely to be affected by a hazardous chemical at the workplace. The register must include a list of hazardous chemicals used, handled or stored at the workplace and must contain the current SDS for each hazardous chemical listed.

You should also keep a list (or manifest) of your entire chemical stock (hazardous plus non-hazardous chemicals). A manifest assists with stock control and helps emergency services to effectively respond to chemical emergencies without risk to personnel. Both the stock manifest and the register of hazardous chemicals must be maintained in the workplace and updated as chemical stock is purchased or used.

How do I make sure my labelling becomes compliant?

As you perform your normal workplace duties of updating chemical manifests, registers, SDS and labels, you should begin to phase in the *GHS* changes. This process will take some time and you have until December 2016 to complete it, however, good workplace management will reduce workloads and ensure compliance occurs within this deadline. This process may be assisted by requesting relevant *GHS* compliant stock and documentation from suppliers as you purchase chemicals for your workplace.