

READING LABELS AND MATERIAL SAFETY DATA SHEETS

HOW TO FIND OUT ABOUT CHEMICALS USED IN YOUR WORKPLACE



GUIDE 2006

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The purpose of this guide

What is this guide about?

This guide will help workers obtain health and safety information by reading and understanding labels on containers of chemicals, and the material safety data sheets (MSDS) relating to chemicals they use.

Who is this for?

This guide is for workers who use chemicals supplied to their workplace.

Trainers will also find this useful when conducting courses.

Why use this guide?

When using chemicals, workers have a right to the following information:

- know what the chemical is
- where to get advice and information about the chemicals
- what the hazards and risks are when using it
- how to be protected from harm that could arise from the risks.

The *Occupational Health and Safety Regulation 2001* requires employers to provide instruction and training to help employees understand the information on labels and in MSDS, and how to apply this information.

When should this guide be used?

This guide should be used in all workplaces where chemicals are used. It will help workers recognise labels, and help them find information in Material Safety Data Sheets (MSDS).

This guide will also be useful as a training tool.

Chemicals in the workplace

Chemicals used in the workplace can be placed into the following three overlapping groups:

- hazardous substances
- dangerous goods
- scheduled poisons.

A chemical can be classified as a hazardous substance and/or a dangerous goods and/or a scheduled poison. Not all hazardous substances are also classified as dangerous goods and so the container will not necessarily have a dangerous goods label. This is because the dangerous goods 'diamond' indicates an immediate hazard and not a long term health risk.

Hazardous substances are chemicals harmful to health. This includes short term effects (such as poisoning) and long term effects (such as causing cancer).

Dangerous goods have an immediate physical risk (such as fire or explosion), or an immediate health risk (such as rapid poisoning).

'Scheduled poisons' are classified on the basis of health hazards – this classification is used for chemicals available for domestic use and for pesticides. 'Poisons' are listed in a schedule known as the SUSDP (*Standard for the Uniform Scheduling of Drugs and Poisons*). Such domestic chemicals (including items such as cleaners, pesticides and solvents) are usually sold in retail outlets (in consumer packages), but may also be used in workplaces – so workers need to be aware of this labelling.

Key health and safety information is provided on labels, and more detailed information is provided in Material Safety Data Sheets (MSDS).

What does the law say about providing labels and MSDS in workplaces?

Legal obligations are specified in the *Occupational Health and Safety Regulation 2001* (OHS Regulation).

Manufacturers are required to classify chemicals and prepare Material Safety Data Sheets (MSDS). Importers must ensure that the manufacturer's responsibilities are met.

Suppliers are required to provide labels on containers and MSDS for those chemicals classified as hazardous substances or dangerous goods that they supply to workplaces.

Bulk containers, such as tanks, sent to your workplace must have placards that indicate their dangerous goods classification if they contain dangerous goods.

If chemicals are transferred to other containers, such as by decanting, suitable labelling needs to be maintained, similar to that on the original container unless the chemical is consumed immediately in a process.

Employers must ensure that labels are applied to containers and that MSDS are made accessible to workers who may be exposed to the chemicals. All hazardous substances and dangerous goods used in the workplace must be listed on a register together with the relevant MSDS. Employees must have access to this register. Training should ensure that workers who use chemicals can read and understand relevant labels and MSDS.

Reading labels

Reading the labels on containers and packages is the first step in getting health and safety information on the chemicals used. It is important to recognise symbols and read labels so that you can take steps to protect the health and safety of yourself and others.

Read the label to find out the following information:

- the product name or trade name (you need this if you want to get the correct MSDS)
- the proper name for the chemical and its ingredients
- any possible safety risks or health effects
- advice on how to use the chemical safely.

Chemicals classified as hazardous or dangerous have labels that show the following:

- a symbol or key word indicating the relevant hazards –
 - (a) the dangerous goods 'diamond', or
 - (b) the word 'Hazardous', or
 - (c) a word providing a warning (such as 'dangerous poison' or 'caution').
- product name
- chemical names
- risk information
- directions for use
- safety information
- first aid directions
- emergency procedures
- supplier contact details
- reference to the corresponding MSDS.

How to interpret signs and words on labels

First, look to see if the label shows a dangerous goods 'diamond', the word 'hazardous' or another warning.

'Diamond' labels – dangerous goods

If a chemical is classified as a dangerous goods, it will have a 'diamond' sign(s) that indicate the type of hazard. These symbols are illustrated on page 6.

For example, a dangerous goods 'diamond label for a toxic substance looks like this:



The 'hazardous' label – hazardous substances

If a chemical is hazardous, the container label will have the word 'hazardous', usually in red.

HAZARDOUS

The risk and safety phrases on the label give more detail as to the nature of the hazard and precautions to take.

Sample of a hazardous substances label

<p style="text-align: center;">HAZARDOUS</p> <p style="text-align: center;">MOCA</p> <p style="text-align: center;">4,4' – Methylene</p> <p style="text-align: center;">bis (2 chloroaniline)</p> <p style="text-align: center;">500gm</p> <p><u>Risk</u></p> <p>May cause cancer. Harmful if swallowed.</p> <p><u>Safety</u></p> <p>Avoid exposure – obtain instructions before use.</p> <p>Wear suitable protective clothing.</p> <p><u>First Aid</u></p> <p>In case of accident or if you feel unwell contact a doctor or Poisons Information Centre immediately (show the label where possible). Transfer patient to fresh air. If breathing has stopped begin artificial respiration immediately. Wash exposed skin or eye thoroughly with water. If ingested have victim drink 250ml of water.</p> <p><u>Spills/Leaks</u></p> <p>Only trained personnel should clean up. Use impervious protective clothing, for example, nitrile rubber, and respirators. Contain spill with sand or absorbent material. Shovel solid material into clean dry labelled containers and cover.</p> <p><u>Fire</u></p> <p>Based on current available information MOCA does not burn.</p> <p><i>Additional information is listed in the Material Safety Data Sheet.</i></p> <p>Prodaustralian, 15 Bunch Lane.</p> <p>BANANA TOWN QLD 4567 Ph: (071) 369 7241</p>
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The poisons label (for poisons primarily for domestic use)

Some containers may have a 'signal word' which is one of the following, shown in order of increasing risk:

CAUTION
WARNING
POISON
DANGEROUS POISON

This indicates that the substance in the container is a scheduled poison. This labelling is used pesticides and commonly available domestic chemicals, such as those available from retail outlets such as hardware stores.

The label for agricultural and veterinary chemicals

Under the NSW *Pesticide Act 1999* and its regulations, it is illegal to disregard the label instructions of a registered pesticide in NSW. You must read the label or have it read to you before using any pesticide. Furthermore, you need to read all the label instructions, not just those sections of the label referring to the rate of application. All of the instructions on the label must be followed.

The NSW Environment Protection Authority (EPA), now within the Department of Environment and Conservation (DEC), enforces the proper use of all pesticides in NSW. This includes pesticides use in agriculture, on public lands and in domestic and commercial premises.

The APVMA approved label must contain certain information including name of the chemical, any SUSDP signal warnings, the name and proportion of each active constituent and the name and address of the person who is primarily responsible for marketing the product.

Examples of registered pesticide labels can be found in an APVMA online database called PUBCRIS, which can be found at www.apvma.gov.au.

Details of information on the label

Name of the substance and ingredients

Since most products and chemicals have a trade name, both the trade name and the common chemical name appear on the label.

For mixtures, each chemical that is hazardous is usually listed as an ingredient. Sometimes these are given in a range of concentrations: for example 30 per cent – 60 per cent, to preserve commercial confidentiality. Sometimes a generic name is used: as examples, 'phenol derivative' or 'inorganic mercury compound'.

Risk phrases

This is a general description of the hazards. As examples, phrases such as 'Toxic if swallowed' or 'Irritating to skin' indicate the way in which harm could occur.

These phrases are selected by the supplier from a standard list of phrases based on the health criteria classification.

For dangerous goods, the 'diamond' symbol shows the risk (eg 'flammable').

Safety phrases

Safety phrases provide information on safe storage and handling, and personal protection. Examples are:

- 'Keep container dry'
- 'When using, do not eat or drink'
- 'Wear suitable protective clothing'.

Directions for use

This section of the label provides directions on how the chemical should be used, in more detail than the safety phrases.

First aid

Brief first aid instructions are provided for immediate treatment if exposure or contact with the chemical occurs. These instructions are based on methods and materials commonly available.

Emergency procedures

These apply to situations such as spillage, fire or leakage of the chemical. This includes the type of equipment to be used, such as the type of fire extinguisher to use.

Details of the manufacturer or supplier

This is the name, address and Australian emergency telephone number of the manufacturer or supplier initially responsible for distributing the chemical. This is also the source of Material Safety Data Sheets (MSDS).

Symbols for dangerous goods

The chemicals or articles classified as dangerous goods can be identified by the following labels.

The 'diamond' symbol on the label (the 'class' symbol) shows the main hazard. Sometimes there are two symbols if the chemical has more than one hazard. These have a distinctive 'diamond' symbol and colour, illustrated below.



Class 1 – Explosives

Substances and articles used to produce explosions or pyrotechnic effects. These include high explosives, fireworks and cartridges.

Class 2 – Gases

These are gases which have been compressed, liquefied or dissolved under pressure.

Class 2.1 – Flammable gases.

Examples: acetylene, hydrogen, liquefied petroleum gas (LP Gas).

Class 2.2 – Non-flammable, non-toxic gases.

Examples: oxygen, nitrogen, air, argon.

Class 2.3 – Toxic gases: gases liable to cause death or serious injury to human health if inhaled.

Examples: ammonia, chlorine, carbon monoxide.

Class 3 – Flammable liquids

These are liquids, mixtures of liquids or liquids containing solids in suspension, which in most instances can be ignited and will burn.

Class 3 PG I – Flammable liquids with a flashpoint less than 23°C and an initial boiling point not greater than 35°C.

Examples: diethyl ether, carbon disulfide.

Class 3 PG II – Flammable liquids with a flashpoint less than 23°C and an initial boiling point greater than 35°C.

Examples: petrol, acetone, paint thinners.

Class 3 PG III – Flammable liquids – liquids with a flashpoint of 23°C or more, but less than or equal to 60.5°C.

Examples: kerosene, mineral turpentine.

Containers of combustible liquids (such as oils), with a flashpoint over 60.5°C, are not required to be marked. Examples are diesel fuel and lubricating oils.



Class 4 – Flammable solids

Class 4.1 – Flammable solids, self-reactive and related substances and desensitized explosives – solids easily ignited and readily combustible.

Examples: nitrocellulose, phosphorus, matches.

Class 4.2 – Substances liable to spontaneous combustion.

Examples: aluminium alkyls, white phosphorus.

Class 4.3 – Substances which emit flammable gases when in contact with water.

Examples: aluminium phosphide, calcium carbide.



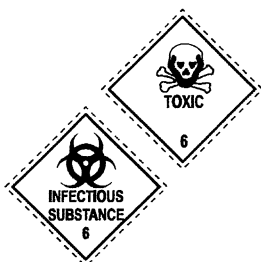
Class 5 – Oxidizers

Class 5.1 – Oxidizing agents.

Examples: hydrogen peroxide, calcium hypochlorite (dry pool chlorine), ammonium nitrate.

Class 5.2 – Organic peroxides (liquid or solid).

Examples: methyl ethyl ketone peroxide, dibenzoyl peroxide, cumyl hydroperoxide.



Class 6 – Toxic and infectious substances

These are poisonous (toxic) and infectious substances (excluding toxic gases which are in class 2.3).

Class 6.1 – Toxic substances. These are liable to cause death or serious injury to human health if inhaled, swallowed or absorbed through the skin.

Examples: cyanides, arsenic compounds.

Class 6.2 – Infectious substances. These are substances containing viable micro-organisms that are known or believed to cause disease in humans or animals.

Examples: viruses, pathology specimens.



Class 7 – Radioactive substances

These emit ionising radiation. Examples are radioisotopes used in medicine.



Class 8 – Corrosives

These are substances (either solids or liquids) which will damage living tissue, goods or equipment on contact, by chemical action.

Examples: hydrochloric acid, sodium hypochlorite (liquid pool chlorine), sodiumhydroxide (caustic soda).



Class 9 – Miscellaneous dangerous goods

These are substances and articles which have potentially dangerous properties that are relatively minor.

Examples: polyester beads, polychlorinated biphenyls.

Handling chemicals

Decanting and relabelling

It is common practice to pour or transfer chemicals from one container to another – for example from a large container to a smaller one for ease of use. This is known as decanting. A label is not necessary on the new container if the chemical is used immediately and the container is immediately cleaned.

However, it is good practice to relabel all containers after decanting. If the hazardous substance is to be used during a single shift, then the new container must be labelled with the product name and risk and safety phrases (or the dangerous goods 'diamond' symbol). If the decanted chemical is not used within a single shift, then the new container should be fully labelled in a manner consistent with the label on the original container supplied.

Further advice is provided in the *National Code of practice for the labelling of workplace substances*.

Bulk containers

Bulk containers or vessels of dangerous goods must show placards that include the dangerous goods 'diamond' used on smaller containers.

Vessels and pipes

Enclosed vessels and pipes should be labelled so as to identify the contents and indicate risks. For example colour coding and symbols are provided in the Australian Standard AS 1345 *Identification of the Contents of Piping, conduits and Ducts*. Australian Standard AS 1319 *Safety Signs for the Occupational Environment* also provides suggested symbols.

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Material safety data sheets

Reading the material safety data sheet (MSDS) that applies to each chemical is the second step in getting more detailed health and safety information.

Having identified the name of the substance from the label, you can now ask for the correct MSDS. Suppliers must provide MSDS for all chemicals classified as hazardous or dangerous. Employers must make these readily accessible to employees.

If an MSDS is not available, you should ask your employer or supplier for one. If you have difficulty in getting or using MSDS, contact your local WorkCover office.

What is a MSDS?

A MSDS is a document prepared by the manufacturer or importer. The MSDS will state whether the chemical is classified as hazardous and/or dangerous.

For chemicals that are not hazardous or dangerous, other information may be available about health and safety in a different format.

What does a MSDS tell you?

The MSDS should give you the following information:

- trade name of the product
- ingredients of the chemical or product
- how it may be a danger to health or safety
- first aid instructions
- safety precautions when using the chemical or product
- safe handling and storage advice.

Just because a MSDS has been provided this does not automatically mean that the chemical or product is now safe to use. You should read the MSDS carefully, including the directions for using and storing the chemical. This information should be used when assessing the risks of the work with the chemical or product. You can use this information to choose the safest chemical for the job.

You need to apply this information to your work. The precautions may differ depending on how it is used. As examples: is it used indoors in an enclosed space, or outdoors; is it sprayed on or are items dipped into it?

Your employer must have a MSDS for every chemical supplied to your workplace that is classified as dangerous or hazardous. You are entitled to see the MSDS if you could be exposed to the chemical.

The MSDS is not confidential.

What if the MSDS does not tell you what you want to know?

Most of the things you want to know should be on the MSDS. If you are not satisfied, then get in touch with the contact person listed on the MSDS. Your workplace OHS representative, safety officer or employer can help arrange this.

Keeping MSDS in your workplace

The following steps should be observed:

- keep copies of MSDS for each chemical or product used and place copies in a register
- store the MSDS in a place that is accessible to everyone – you may need them near the location where the particular chemical is used
- make sure everyone is trained to be familiar with the contents of the MSDS for the products they use
- workers using chemicals or products must be trained in safe use – base this training on the advice in the MSDS
- make sure that the MSDS is complete (eg no pages missing) and is not more than five years old.

Using MSDS

Supervisors, OHS representatives (eg the OHS Committee), the health and safety officer and employees can use MSDS to check on and improve health and safety in the workplace.

Use MSDS to do the following:

- identify how the product is hazardous or dangerous
- assist in carrying out risk assessments
- find out how to use a product safely
- check if all chemicals or products are being used in the right way for the right job
- decide whether any improvements are needed to plant or procedures
- decide if monitoring for airborne contamination needs to be done
- check that emergency equipment and procedures are adequate
- develop on the job training.

If a worker needs medical attention as a result of workplace exposure, the MSDS may be of assistance to the medical practitioner and provide background information on the chemical being used. Take a copy to the doctor if you can.

What does a MSDS look like?

A recommended format and contents for MSDS has been adopted in Australia, and changed recently from 8 sections to 16 sections. The format of the MSDS that you receive may be different, but you should expect to find the information outlined below.

Material Safety Data Sheet format

Section 1

Identification of the material and supplier

This is where you can check the identification against the label (make sure you have the right MSDS).

Check the recommended uses intended by the manufacturer and methods of application – follow these to ensure safe use.

This also tells you how to contact the supplier.

Section 2

Hazards identification

This gives:

- the classification
- a statement of the overall hazardous nature
- risk phrases
- safety phrases.

See also the transport information in section 14 for dangerous goods details.

Section 3

Composition and information on ingredients

This identifies the material by its chemical identity, and the ingredients if it is a mixture. In some cases this can be expressed as generic names and a range of concentrations.

Section 4

First aid measures

This describes first aid, according to the route of exposure. This will indicate medical attention and special treatment needed including a description of the most important symptoms (acute and delayed).

This includes advice to medically trained personnel.

Section 5

Fire fighting measures

Look here for advice on fire fighting, including:

- the types of extinguisher you should have
 - the most suitable extinguishing media
 - hazards from combustion products
 - special precautions for fire fighters.
-

Section 6

Accidental release measures

- emergency procedures
 - methods and materials for containment and clean up.
-

Section 7

Handling and storage

- precautions for safe handling
 - conditions for safe storage, including any incompatibilities
-

Section 8

Exposure controls and personal protection

- exposure standards (if assigned – not all substances have these)
 - biological exposure limits (this is relevant to health monitoring – eg concentrations in blood or urine)
 - engineering controls – this shows how to reduce exposure and risks (eg ventilation methods)
 - recommended personal protective equipment (PPE) – the specific types of protective clothing (eg type of gloves, apron) and respirator (if required), to reduce exposure.
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Section 9

Physical and chemical properties

This covers a wide range of technical information, and includes appearance and smell.

Section 10

Stability and reactivity

This tells you conditions to avoid and incompatible materials (ie do not use or keep it near substances that are incompatible).

Section 11
Toxicological information

This describes the health effects (if any) from the likely routes of exposure.

Section 12
Ecological information

This tells you its toxicity to organisms such as fish, its persistence and biodegradability and mobility in the environment.

Section 13
Disposal considerations

This recommends disposal methods and containers and any special precautions for landfill or incineration.

Section 14
Transport information

This includes the following information relevant to its dangerous goods classification (if any):

- UN number
- proper shipping name
- Class and Subsidiary Risk
- Packing Group
- special precautions
- HAZCHEM code (for fire fighting).

Section 15
Regulatory information

This lists relevant legislation in Australia controlling use of the chemical (including poisons scheduling).

Section 16
Other information

Look here for the date of preparation or revision – MSDS must not be more than 5 years old.

Further information

Further information can be found in the following publications.

Code of practice for the control of workplace hazardous substances.

Code of practice for the storage and handling of dangerous goods.

These can be found on the web site **www.workcover.gov.au**.

Code of practice for the labelling of workplace substances (national code published by the Australian Government).

Code of practice for the preparation of material safety data sheets (national code published by the Australian Government).

The national codes can be found on the web site **www.ascc.gov.au**.



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