How to find out about chemicals used at your workplace
Introduction

The purpose of this booklet is to help workers read and understand labels and material safety data sheets (MSDS) relating to chemicals used on the “shop floor”.

Chemicals used in the workplace can be classed in four different ways: Hazardous substances Poisons Dangerous goods Agricultural/Veterinary (see table 1)

A chemical can be a hazardous substance AND/OR a poison or any other of these classifications or combination of classifications. Hazardous substances are substances which are harmful to health.

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

The legal obligations of suppliers and employers are specified by the Occupational Health and Safety (Hazardous Substances) Regulation 1996.

Suppliers, and this includes importers and manufacturers, are required to provide labels on containers and MSDS for the hazardous substances they supply. Bulk containers such as tanks are exempt from these labelling provisions of the legislation, but must be labelled if they contain dangerous goods.

Employers must ensure that labels are appropriate and make MSDS accessible to employees who may be exposed to hazardous substances. All hazardous substances used in the workplace must be listed in a register together with the relevant MSDS. Employees must have access to this register.

The Hazardous Substances Regulation also requires that employers provide instruction and training to help employees understand the information on labels and MSDS and how to apply this information in the workplace.

Note: Regulations under the OHS Act are under review, but it is expected that provisions of the Hazardous Substances Regulation will continue substantially unchanged although these provisions will be contained in a chapter of the proposed OHS Regulation rather than as a separate Hazardous Substances Regulation.

Reading labels

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

Chemicals classified as hazardous substances have labels which show:

- a symbol or key word indicating the hazard:
  (a) the dangerous goods “diamond” where relevant, and/or
  (b) a “signal word” providing a warning about the substance, or
  (c) the word “Hazardous” (in red)
- product name
• chemical name(s) of the substance and/or ingredients
• risk information
• directions for use
• safety information
• first aid directions
• emergency procedures
• name and phone number of manufacturer or supplier
• expiry date (where relevant)
• reference to an MSDS

First, look to see if the label shows a dangerous goods “diamond”, a warning "signal word" or the word “HAZARDOUS.”

**“Diamond” labels - dangerous goods**

If a substance is a dangerous good it will have a “diamond” sign(s) which indicates a type of hazard. Where a substance has two or more hazards, the labels indicate the hazards. However, not all hazardous substances are 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 health risk.

A dangerous goods label is a “diamond”. For toxic substances it looks like this:

Other types of diamonds are shown in the section Symbols for dangerous goods.

**The SUSDP poisons label - poisons**

Some containers may have a “signal word” which is one of the following:

- DANGEROUS POISON
- POISON
- WARNING
- CAUTION

This indicates that the substance in the container is classified as a scheduled poison.

**The “hazardous” label - hazardous substances**

Some containers have the word “Hazardous” in red.

HAZARDOUS

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

Sample of an acceptable hazardous substance label
Detailed information on the “hazardous” label - hazardous substances

Name of the substance and ingredients
Since most products have a trade name, both the trade name and the common chemical name are given on the label.

For mixtures, each chemical which is hazardous is usually listed as an ingredient. Sometimes these are given in a range of concentrations, eg. 30% - 60%, to preserve commercial confidentiality. Sometimes a generic name is used, eg. “phenol derivative” or “inorganic mercury compound”.

Risk phrases
This is a general description of the hazards. It is also written as an alpha-numeric classification number. For example, a phrase such as “Toxic if swallowed” (R25) or “Irritating to skin” (R38) indicates the way in which harm could occur.

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

Safety phrases
Safety phrases provide information on safe storage and handling and personal protection. They can also be written as a alpha-numeric classification number. Examples are:
- “Keep container dry” (S8)
- “When using, do not eat or drink” (S20)
- “Wear suitable protective clothing” (S36)

These phrases are chosen by the supplier from a standard list.

Directions for use
This section of the label provides directions on how the substance 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 occurs. These instructions are based on methods and materials commonly available.

Emergency procedures
These apply to situations such as a spillage, fire or leakage of the substance. This includes the type of equipment to be used, for example, the type of fire extinguisher to use.

Details of manufacturer or supplier
This is the name, address and Australian emergency number of the manufacturer or supplier initially responsible for distributing the substance. This is also the source of material safety data sheets.
Identify substances classified as dangerous goods from the following labels.

The “diamond” sign on the label shows to which of the nine classes the dangerous goods belong. This label, or diamond sign, has a distinctive symbol and colour.

In addition, some labels also show the Packing Group (abbreviated as PG), which indicates the degree of danger:

- PG I - great danger,
- PG II - medium danger,
- PG III - minor danger.

**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), sodium hydroxide (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.

Decanting and relabelling

It is common practice to pour substances from one container to another, for example from a large container to a small one for ease of use. This is known as decanting. A label is not necessary on the new container if the hazardous substance is used immediately and the container immediately cleaned. However it is good practice to
adequately relabel all containers after decanting. If the hazardous substance is to be used during a single shift, then the new container should be labelled with the product name and risk and safety phrases. If the decanted hazardous substance is not used within a single shift then the new container should be fully labelled as shown in the Code of practice for the labelling of workplace substances and as indicated on the original container label.

**Bulk handling**

**Vessels and pipes**

Enclosed vessels and pipes which contain hazardous substances should also be labelled, so as to identify contents and indicate risks, although full labelling as outlined in this booklet is not usually required. They can be labelled for example, with a colour coding system such as described 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.

The Dangerous Goods Regulation 1978 specifies signs to be displayed on bulk containers of dangerous goods. These include the “diamond” sign identical to the one on containers.

**Material safety data sheets (MSDS)**

It is important to know about the chemical products used at your workplace. Reading the material safety data sheet (MSDS) is the second step in getting more detailed health and safety information on the chemicals used in your workplace.

**What is a material safety data sheet (MSDS)?**

Having identified the substance from the label, you can ask if an MSDS is available. An MSDS will be available if the chemical is identified as a hazardous substance.

A material safety data sheet (MSDS) is a document prepared by the manufacturer of the product, or the supplier. They are available from the manufacturer or through the supplier. MSDS should clearly state if a product is a hazardous substance.

An MSDS should have arrived in the workplace on or about the first supply of a hazardous substance. If an MSDS is not available you should ask your employer or supplier. If you have difficulty in getting or using an MSDS contact your local WorkCover NSW office. For chemicals which are not hazardous substances other types of information may be available which are not set out in the format of an MSDS.

**What does a material safety data sheet tell you?**

- the ingredients of the product
- the health effects of the product and first aid instructions
- precautions to follow when you use the product
- safe handling and storage information.

Just because an MSDS has been provided this does not automatically mean that the product is now safe to use. You should read the MSDS carefully and do a risk assessment.
What if the MSDS doesn’t tell you what you want to know?
Most of the things you want to know about a product should be on the MSDS. If you are not satisfied with what is on the MSDS then get in touch with the contact person listed on the MSDS. Your workplace health and safety committee or safety officer can help arrange this. You can also get help from your local WorkCover NSW office.

MSDS in your workplace
- Keep copies of the MSDS for each product used and place in a register.
- Store the MSDS in a place that is accessible to everyone.
- Make sure everyone is familiar with the contents of the MSDS for products used in their area and trained in the correct use.
- Make sure that the MSDS is complete and is not more than five years old.

Using MSDS
Use MSDS to:
- identify if the product is a hazardous substance
- assist in carrying out risk assessments.

You can also use MSDS to:
- find out how to use a product safely
- check that all products are being used in the right way for the right job
- decide whether any improvements should be made to machinery or procedures
- decide whether any monitoring for airborne contamination should be done
- check that emergency equipment and procedures are adequate
- develop on-the-job training.

Supervisors, the workplace health and safety committee, the health and safety officer and employees can use the MSDS to check on and improve health and safety in the workplace.

What does an MSDS look like?
A recommended format and contents for material safety data sheets has been prepared by the National Occupational Health and Safety Commission (Worksafe Australia). The format of the material safety data sheet that you receive may be slightly different, but you should expect to find the information outlined below.

**MSDS format**

<table>
<thead>
<tr>
<th>Material Safety Data Sheet Format</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statement of hazardous nature:</strong> “Hazardous according to Worksafe criteria”</td>
</tr>
<tr>
<td><strong>Date of issue</strong></td>
</tr>
<tr>
<td><em>Check it is up to date (not more than 5 years old).</em></td>
</tr>
</tbody>
</table>
**Manufacturer’s or supplier’s details**

*This tells you how to contact the supplier.*

- Company
- Address
- Telephone number
- Emergency telephone number (Australian)

**Identification section**

- Product names
  *This is where you can check identification against the label (make sure you have the right MSDS).*
- Other names
- Manufacturer’s product code
- UN number
  *UN numbers apply to substances classified as dangerous goods. Some hazardous substances may also be dangerous goods and/or scheduled poisons.*
- Dangerous Goods class and subsidiary risk
- Hazchem code
  *The Hazchem code is for responding to road emergencies, eg. spills.*
- Poisons schedule number
- Packing group

**Use**

*Here you find the uses recommended or intended by the manufacturer and methods of application. These should be followed to ensure safe use.*

**Physical description and properties**

*This covers a wide range of technical information on properties such as melting and boiling points, flash point and flammability. Also has information on reactivity with other common substances, which is very important when considering safe use and storage.*

**Ingredients**

- Chemical name
- CAS number
- Proportions
  *This gives you the chemical identity of each hazardous ingredient. The CAS number also identifies each ingredient. In some cases generic names and a range of concentrations (eg. 30 - 60%) are used.*
Health hazard information

- Health effects
  - acute
    - swallowed
    - eye
    - skin
    - inhaled

Here you find the short-term effects of exposure to the product by the relevant routes of exposure (if any).

- chronic

These are the long-term effects (if any).

- First aid

This gives first-aid instructions for each relevant route of exposure and a list of any first-aid facilities required in the workplace.

- Advice to doctor

This is for use by medically trained personnel.

Precautions for use

- Exposure Standards (Worksafe)

Exposure Standards for contaminants in air, which must not be exceeded, if applicable or available. Not all substances will have exposure standards. This does not cover the dermal (skin) or oral (mouth) routes of exposure.

- Engineering controls

This gives ways of reducing exposure, for example ventilation methods.

- Personal protection

This gives specific types of protective clothing (eg. type of gloves, apron) and respirator if required, to reduce exposure.

- Flammability

Here you find the steps to avoid fires and explosions.

Safe handling information

- Storage and transport

Safe storage and transport requirements including any chemical incompatibility.

- Spills and disposal

Information on suitable methods to avoid spills, materials to absorb spills and suitable methods of disposal.

- Fire/explosion hazards

This includes information for fire fighting and emergency services. Indicates any dangerous decomposition or combustion products. Shows the types of fire extinguishers you should use.

Other information

- Contact point (Australian)

This is where you find the direct telephone number and job title of the person to contact for more information.

End of Material Safety Data Sheet format
Further information

It is recommended that the following codes be read in conjunction with this publication.


Available from WorkCover bookshop, phone 1800 658 134. The National Occupational Health and Safety Commission codes of the same name are available from Commonwealth Bookshops.

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### Table 1 Classes of Chemicals

<table>
<thead>
<tr>
<th>Type of substance</th>
<th>Common-wealth or NSW Act</th>
<th>NSW Regulation</th>
<th>Criteria</th>
<th>Classification documents</th>
<th>Administered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous substance</td>
<td>OHS Act</td>
<td>OHS (Hazardous Substances) Regulation</td>
<td>Health effects</td>
<td>1,2,3,4,5</td>
<td>WorkCover NSW</td>
</tr>
<tr>
<td>Poison</td>
<td>P&amp;TGA</td>
<td>P&amp;TGR 1994</td>
<td>Toxicity and other criteria</td>
<td>SUSDP</td>
<td>Commonwealth (AHMAC)&amp; NSW Health</td>
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<tr>
<td>Agricultural/ veterinary</td>
<td>AVCAA</td>
<td>AgVet Code</td>
<td></td>
<td>AgVet Code</td>
<td>NRA</td>
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<tr>
<td></td>
<td>PA 1978</td>
<td>PR 1995</td>
<td></td>
<td></td>
<td>NSW Agriculture</td>
</tr>
</tbody>
</table>

1. Code of practice for the control of workplace hazardous substances
2. Code of practice for the labelling of workplace substances
3. Code of practice for the preparation of material safety data sheets
4. Approved criteria for classifying hazardous substances
5. List of designated hazardous substances

SUSDP: Standard for the Uniform Scheduling of Drugs and Poisons
P&TGA: Poisons and Therapeutic Goods Act 1966
ADG Code: Australian Code for the Transport of Dangerous Goods by Road and Rail
PA: Pesticides Act 1978
PR: Pesticides Regulation 1995
DG(R&R)TR: Dangerous Goods (Road and Rail) Transport Regulations 1998
AVCAA: Agricultural & Veterinary Chemicals Administration Act 1994
AgVet Code: Agricultural & Veterinary Chemicals Regulating Code
AHMAC: Australian Health Ministers Advisory Council
Albury: (02) 6021 5911 Bateman’s Bay: (02) 4472 5544 Blacktown: (20) 9671 8700
Dubbo: (02) 6884 2799 Gosford: (02) 4324 3384 Goulburn: (02) 4822 1243
Grafton: (02) 6642 0511 Griffith: (02) 6964 2027 Hurstville: (02) 9598 3366
Lake Macquarie: (02) 4959 6366 Lindfield: (02) 9936 3000 Lismore: (02) 6622 0088
Liverpool: (02) 9827 8600 Narrabri: (02) 6792 4643 Newcastle: (02) 4921 2900
Orange: (02) 6361 7070 Parramatta: (20) 9841 8550 Port Macquarie: (02) 6584 1188
Shellharbour: (02) 4297 3796 Sydney: (02) 9370 5027 Tamworth: (02) 6766 2490
Tweed Heads: (07) 5536 3262 Wagga Wagga: (02) 6921 8766 Wollongong: (02) 4222 7333