

Provision of information on hazardous substances at workplaces

Material Safety Data Sheets (MSDS)



Disclaimer

Information in this publication is provided to assist people in meeting their occupational safety and health obligations. While information is correct at the time of printing, readers should check and verify any legislation referenced in this publication to ensure it is correct at the time of use.

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Introduction

Many materials used at the workplace are classified as hazardous substances such as oven cleaners, glues and solvents. The law requires that safety and health information must be provided to workplaces in the form of Material Safety Data Sheets and labels so that the hazardous substances can be used safely.

This document has been prepared and published by the Commission for Occupational Safety and Health to provide guidance on the provision of information on hazardous substances used at workplaces.

The objective is to ensure that manufacturers, importers, suppliers, self-employed people, employers and employees understand what is required with respect to the supply of Material Safety Data Sheets and how this relates to the safe use of hazardous substances at the workplace.

What is a Material Safety Data Sheet (MSDS)?

A Material Safety Data Sheet (MSDS) is a document that provides information about a hazardous substance and how it should be used and how to avoid harm when using it at the workplace.

What the law says

The *Occupational Safety and Health Act 1984* lists a number of specific duties for all employers. Employers must, as far as practicable, provide information, instruction, training and supervision so that employees can perform their work safely and are not exposed to hazards.

People who manufacture, import or supply any substance for use at a workplace must provide sufficient information so that the substance can be used safely.

Part 5 of the Occupational Safety and Health Regulations 1996 (the regulations) requires that information about a hazardous substance must be set out in an MSDS and on the container label.

Manufacturers, importers or suppliers of hazardous substances must provide information in an MSDS about the substances such as, the identity of the substance and safe handling, transport, storage and disposal.

Suppliers (except retailers) must provide employers with an MSDS for all hazardous substances obtained by the employer for use at the workplace.

Employers must obtain an MSDS for all hazardous substances obtained for use at the workplace.

Employers must make MSDSs available to all people at the workplace who are potentially exposed to the hazardous substance.

What information must be provided in an MSDS?

To comply with the law in Western Australia, an MSDS for a hazardous substance will describe its properties and uses, including:

- ***the identity of the hazardous substance***
eg product information to identify the hazardous substance(s) and basic information on uses;
- ***chemical and physical properties***
eg physical description including description of the mixture or formulation if applicable;
- ***health hazard information***
eg health effects from exposure and first aid information;
- ***precautions for use***
eg correct application and common uses, ventilation requirements, equipment for personal protection and information on flammability; and
- ***safe handling information***
eg safe storage in the workplace, safe transporting, dealing with spills and disposal and information for fire fighting and emergency services.

You will find more detail on the information that must be included in an MSDS in **appendix one**.

Who provides MSDSs?

Manufacturers and importers

The person who manufactures or imports a hazardous substance for use at a workplace must:

- prepare an MSDS for the hazardous substance;
- ensure an MSDS is available before the hazardous substance is supplied to the workplace; and
- review and revise MSDS to keep them up-to-date, at least every five years.

Suppliers

The supplier of a hazardous substance for use at a workplace must ensure that a current MSDS for the hazardous substance is provided when a person:

- purchases the hazardous substance from the supplier for the first time;
- purchases the hazardous substance from the supplier at a later time and requests an MSDS; or
- purchases the hazardous substance from a retailer, who originally obtained it from the supplier and requests an MSDS.

Employers, main contractors or self-employed people

An employer, main contractor or self-employed person must:

- Be provided with an MSDS either before or on the first occasion that the hazardous substance is supplied to the workplace. If an MSDS is requested, then an MSDS must be provided on the subsequent supply of the hazardous substance to the workplace.
- Consult with all people who might be exposed to the hazardous substance at the workplace about the intention to use the hazardous substance at the workplace and the safest methods of using it.
- Ensure that an MSDS for each hazardous substance is readily available to any person at the workplace who might be exposed to the substance(s).
- Ensure that no alteration is made to an MSDS. The only exception is where the employer is also the importer of the hazardous substance and an overseas MSDS requires alteration to conform with the regulations relating to MSDSs in Western Australia.

When is an MSDS required at the workplace?

A current MSDS must be obtained by employers and must be made readily available to employees who may be exposed at the workplace whenever a hazardous substance is used. It is important to ensure that MSDSs are readily available and accessible in the workplace, so that they can be easily located in an emergency, such as fire.

When must an MSDS be supplied?

There are three instances when an MSDS must be supplied:

- when a hazardous substance is provided to a workplace;
- when a hazardous substance is subsequently purchased and the MSDS is requested; and
- when a potential or existing purchaser makes a request for an MSDS.

When does an MSDS expire?

The information in MSDSs must be kept current. MSDSs must be updated by the manufacturer or importer as often as reasonably possible to keep them current and at a minimum of every five years.

The employer should check the dates of all MSDSs and ensure that all MSDSs at the workplace are **current**.

How should a third party MSDS be used?

An MSDS produced by the manufacturer or importer of a hazardous substance must be obtained and used as the main source of information. "Third party MSDSs" which are produced by other parties and not the manufacturer or importer can be used as supplementary information, but should never be relied upon as the sole source of information.

Does there need to be any consultation at the workplace about hazardous substances?

An employer who intends to use a hazardous substance at the workplace must consult with all employees about the intention to use the hazardous substance at the workplace and the safest methods of using it.

Who must have access to an MSDS?

Every person in the workplace who may be exposed to a hazardous substance must have ready access to the current MSDS.

How must an MSDS be kept at the workplace?

An employer, main contractor or self-employed person must:

- set up and keep current a register that contains, as a minimum, a list of all the hazardous substances used at the workplace and an MSDS for each hazardous substance used; and
- ensure that the register is readily available to all people who are or who might be exposed to a hazardous substance at the workplace, including emergency service personnel.

An MSDS may be provided electronically if all employees, including shift workers, have access to a computer and provided that all employees are trained on how to use the system.

What are the requirements relating to risk assessments being conducted at the workplace?

The regulations state that employers, main contractors and self employed people must:

- identify hazardous substances;
- assess the risk of injury or harm; and
- reduce the risk by:
 - (a) preventing exposure to the hazardous substance;
 - (b) means other than personal protective equipment; and
 - (c) where (a) and (b) are not practicable, by the use of personal protective equipment.

An assessment of the risks from exposure to hazardous substances by employers, main contractors or self-employed people must include a review of the MSDS for each hazardous substance at the workplace.

Certain uses of some hazardous substances are restricted by the regulations with specific safety requirements stated in Schedule 5.2 of the regulations.

If a risk assessment identifies a significant risk of injury or harm occurring as a result of exposure to a hazardous substance at a workplace, then the employer, main contractor or self-employed person must ensure, as far as is practicable, that a report is prepared on the assessment.

Risk assessment reports on hazardous substances must be noted in a register for hazardous substances. The register must be maintained at the workplace and must include an MSDS for each hazardous substance used.

Subsequent risk assessments must be carried out at least every five years and more frequently if it appears that there is an increase in the risk of injury or harm occurring as a result of exposure to any hazardous substance at the workplace.

How can further information on hazardous substances be obtained?

Further information can be obtained by:

- contacting the supplier;
- searching the internet as there are a number of sites that may provide information such as:
 - www.worksafe.wa.gov.au
 - www.safeworkaustralia.gov.au
 - www.msdssearch.com
 - www.ilpi.com/msds/index.html
 - search engines such as www.google.com; or
- by visiting the WorkSafe library and using the MSDS cd-rom.

Note that third party MSDSs should never be relied upon as the main source of information.

How must hazardous substances be identified at the workplace?

Hazardous substances used in the workplace must be labelled so they can be clearly identified.

The label must contain basic information about the product and its safe use. More detailed information is available in an MSDS, which employers must make available for every hazardous substance used at the workplace.

In the absence of information, it is safer to assume there is a hazard and precautions taken to avoid skin contact, inhalation or ingestion of the chemical.

In workplaces where many workers do not have English as their first language, employers should ensure that all MSDSs are available in appropriate translations as part of the duty of care to provide safe systems of work.

What are the requirements for providing information and training on hazardous substances?

Before hazardous substances are used at the workplace, information and training must be provided on:

- potential health risks and toxic effects associated with hazardous substances;
- control measures to minimise the risks to safety and health;
- correct use of control methods;
- appropriate selection, care and use of personal protective clothing and equipment; and
- the need for, and details of, health surveillance where required.

Frequency of training should be appropriate to the hazardous nature of the substance and the risk associated with its use.

Training must be repeated often enough so that an employee using hazardous substances always uses a safe system of work.

An employer, main contractor or self employed person must ensure that records are kept of all induction and training provided to employees on working with hazardous substances. The training records must include references to each of the topics and details of the information provided including health surveillance where relevant.

What should be done if a person cannot obtain an MSDS from a supplier?

If a person at the workplace has purchased, or is intending to purchase, a hazardous substance and the supplier (except retailers) has refused to provide an MSDS, then that person should contact WorkSafe on 1300 307 877. The legislation provides an obligation that an MSDS must be provided and failure to do this may incur a penalty.

Checklist for workplaces where hazardous substances are used

This checklist should be completed in workplaces where hazardous substances are used and there may be significant risk of injury or disease as a result of exposure to the substances.

Item	Workplace indicators	Yes	No
MSDS register The register of hazardous substances is complete and readily available.	Hazardous substances list is complete.	<input type="checkbox"/>	<input type="checkbox"/>
	Complete set of current MSDS available (check with supplier to confirm they are current MSDSs).	<input type="checkbox"/>	<input type="checkbox"/>
	Register readily available in workplace.	<input type="checkbox"/>	<input type="checkbox"/>
	All relevant employees advised and aware of the location of the MSDS Register.	<input type="checkbox"/>	<input type="checkbox"/>
Labels Hazardous substances are properly labelled.	Original containers have manufacturer's label.	<input type="checkbox"/>	<input type="checkbox"/>
	Decanted containers labelled with name, risk and safety phrases.	<input type="checkbox"/>	<input type="checkbox"/>
Risk assessment Risk assessment has been completed for all hazardous substances and the assessment is recorded in the register.	Risk assessment done for all hazardous substances.	<input type="checkbox"/>	<input type="checkbox"/>
	Record of assessment noted in the register.	<input type="checkbox"/>	<input type="checkbox"/>
	Written report available where risk is significant.	<input type="checkbox"/>	<input type="checkbox"/>
	Subsequent risk assessments carried out every five years, (or more frequently if there is an increase in risks).	<input type="checkbox"/>	<input type="checkbox"/>
Training People required to work with hazardous substances have been provided with adequate information, instruction and training prior to use.	People who may be exposed to hazardous substances have been trained.	<input type="checkbox"/>	<input type="checkbox"/>
	Record of training for each employee includes required health effects, controls, safe work methods, personal protective equipment/clothing and health surveillance.	<input type="checkbox"/>	<input type="checkbox"/>
	Frequency of training is appropriate to the hazardous nature of the substances.	<input type="checkbox"/>	<input type="checkbox"/>
Health surveillance Health surveillance is undertaken where appropriate. This may not be applicable to every workplace.	For substances in Schedule 5.3 of regulations, if there is a risk, eg isocyanates, asbestos and organophosphorous insecticides.	<input type="checkbox"/>	<input type="checkbox"/>
	Medical practitioner appointed.	<input type="checkbox"/>	<input type="checkbox"/>

Appendix one - Information requirements for each MSDS according to the National MSDS Code [NOHSC:2011(2003)]

This information must be included in MSDSs to comply with Western Australian law. The lists set out the information requirements for MSDSs according to the National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011(2003)].

For more information on the National MSDS Code [NOHSC:2011(2003)] please go to the Safe Work Australia website www.safeworkaustralia.gov.au

Please note that the required information is set out in regular font and additional information is in italics. For further explanation on these information requirements please refer to the 2003 version of the National Code of Practice.

Section 1- Identification of the material and supplier

This section provides the name and supplier of the product (material), recommended uses and the contact information of the supplier, including an emergency contact.

- Product (material) name
The brand name, trade name, code name or code number exactly as found on the label for the product as specified by the manufacturer/importer.
- Other names
Could include the Proper Shipping Name from Section 14, if the material is a dangerous goods.

- Recommended use
Provide the recommended use and application and include any restrictions
- Supplier name / address / telephone no. / emergency phone number

Section 2- Hazards identification

This section outlines the hazards of the materials and the appropriate warning information associated with those hazards

- Hazard classification, including a statement of overall hazardous or dangerous nature
- Risk phrase(s)
*A phrase(s) describing the hazard of a substance as provided in the National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008].
The information conveyed by the risk phrases must be consistent with the health effects described in Section 11.*
- Safety phrase(s)
A phrase(s) describing the safe handling, storage or use of personal protective equipment for a substance as provided in the National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008].

Section 3- Composition / Information on ingredients

This section identifies the ingredient(s) of the material.

Substance

- Chemical identity of the pure substance
(Type I hazardous substances must be named)
Type II hazardous substances must be identified, at least, by their generic names as provided in Appendix 6 of the National Occupational Health and Safety Commission's National Code of Practice for the Labelling of Hazardous Substances [NOHSC:2012]).
- Common name(s), synonym(s)
- CAS Number(s)
A CAS number is a unique number assigned to an individual chemical

Mixture

- Chemical identity of ingredients (Type I hazardous substances must be named)
Type II hazardous substances must be identified, at least, by their generic names as provided in Appendix 3 of the National Occupational Health and Safety Commission's National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011(2003)])
- Proportion of ingredients
- CAS Number(s) for ingredients

Section 4 - First aid measures

This section outlines the initial care that can be given without the use of sophisticated equipment and without a wide selection of medications available. If medical attention is required, the instructions should state this, including its urgency.

- Description of necessary measures according to routes of exposure (skin, eyes, ingestion and inhalation)
- Indication of medical attention and special treatment needed with notes to physician including a description of most important symptoms, acute and delayed

Additional information

- *Aggravated medical conditions caused by exposure*

Section 5 - Fire fighting measures

This section describes the fire and explosive properties of the material and provides advice on how to deal with incidents

- Suitable extinguishing media
- Hazards from combustion products
- Special protective equipment and precautions for fire fighters

Additional information

- *Hazchem Code*

An emergency action code, of numbers and letters, which gives fire fighting information to emergency services. Its use is required by the ADG Code for dangerous goods in bulk.

Section 6 - Accidental release measures

This section recommends the appropriate response to spills, leaks, or releases in order to prevent or minimise the adverse effects on persons, property and the environment.

- Emergency procedures
- Methods and materials for containment and clean up

Section 7 - Handling and storage

This section provides guidance on safe handling practices that minimise the potential hazards to people, property and the environment from the material.

- Precautions for safe handling
- Conditions for safe storage, including any incompatibilities

Section 8 -Exposure controls / personal protection

This section details engineering control measures needed to minimise exposure to and risks associated with the hazards of the material.

- National exposure standards
An airborne concentration of a particular material in the worker's breathing zone, exposure to which, according to current knowledge, should not cause adverse health effects nor cause undue discomfort to nearly all workers. In Australia the exposure standards for chemicals can be found at www.ascc.gov.au/SearchES.aspx.
- Biological limit values
Limit values for the level of substances in biological samples such as blood or urine which, according to current knowledge, should not cause adverse health effects in nearly all workers.
- Engineering controls
Practical mechanical measures to control exposure to hazards appropriate for the recommended uses and applications of the substance. The measures should indicate any special engineering controls required and which type eg "use local exhaust ventilation", "use only in a spray booth" or "use explosive dust handling controls".
- Personal protective equipment
This section should state the necessary protective equipment for respiratory, eye and skin protection. Personal protective equipment should only be used where other control methods are not possible or as a backup in conjunction with other controls.

Section 9 - Physical and chemical properties

- Appearance (colour, physical form, shape)
- Odour
- pH
A value representing how acidic (below 7) or alkaline (above 7) a solution is.
- Vapour pressure
Gives an indication of how easily a substance evaporates and whether the substance is likely to pose a risk by inhalation.
- Vapour density
The ratio of the density of the vapour compared to the density of air. The density of air is nominally set to 1.0. Vapours with a vapour density greater than 1.0 will tend to stay close to the floor, whereas vapours with a vapour density less than 1.0 will tend to rise.
- Boiling point/range
The temperature at which the vapour pressure of a substance equals the atmospheric or other designated pressure.
- Freezing/melting point (specify which)
- Solubility (specify solvent, eg water)
A measure of how soluble a substance is. Solubility in water is usually expressed as grams per litre (g/L), percent weight/volume (%w/v) or parts per million (ppm).
- Specific gravity or density

Information for flammable materials, including:

- flash point and method of detecting flash point;
- upper and lower flammable (explosive) limits in air; and
- ignition temperature.
The minimum temperature required to start or cause self-sustained combustion in any substance in the absence of a high temperature ignition source, such as a spark or a flame.

Additional information (if relevant and available)

- Specific heat value
- Particle size
- Volatile organic compounds (VOC) content
- Evaporation rate
- Viscosity
- Percent volatile
- Octanol/water partition coefficient
- Saturated vapour concentration (include reference temperatures)
- Additional characteristics not noted above may also be provided if applicable to the material
- Flame propagation or burning rate of solid materials
- Properties of both flammable and non-flammable materials that may initiate or uniquely contribute to the intensity of a fire (eg Class 4 or Class 5)
- Potential for dust explosion
- Reactions that release flammable gases or vapours
- Fast or intensely burning characteristics
- Non-flammables that could contribute unusual hazards to a fire, such as strong oxidizing and reducing agents or peroxide formers
- Release of invisible flammable vapours and gases
- Decomposition temperature

Section 10 - Stability and reactivity

This section describes reactivity hazards of the material.

- Chemical stability
Indicate if the material is stable or dangerously unstable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
- Conditions to avoid
List conditions such as heat, pressure, shock, or other physical stresses that might result in a hazardous situation.
- Incompatible materials
List classes of chemicals or specific materials with which the material could react to produce a hazardous situation eg. explosion, release of toxic or flammable materials, liberation of excessive heat.
- Hazardous decomposition products
List known and reasonably anticipated hazardous materials produced as a result of oxidation, heating, or reaction with another material, including the production of flammable and toxic materials.
- Hazardous reactions
State if the material will react or polymerize, releasing excess pressure or heat, or creating other hazardous conditions. Describe under what conditions the hazardous reactions may occur.

Section 11 - Toxicological information

This section describes the potential adverse health effects and symptoms associated with exposure to the material and its ingredients or known by-products.

- Health effects from the likely routes of exposure and symptoms including:
 - *acute and chronic effects;*
 - *possible routes of exposure (skin, eyes, ingestion and inhalation);*
 - *range of effects following exposure;*
 - *dose, concentration or conditions likely to cause injury;*
 - *delayed effects; and*
 - *relevant negative data.*
- *The health effects in this section must be consistent with the risk phrases given in Section 2.*

Section 12 - Ecological information

This section provides information to evaluate the environmental impact of the material if it is released to the environment. It can assist in handling spills, and evaluating waste treatment practices and should clearly indicate species, media, units, test duration and test conditions.

- Ecotoxicity
- Persistence and degradability
- Mobility

Additional information

- Environmental fate (exposure)
- Bioaccumulative potential

Section 13 - Disposal considerations

This section provides information on disposal and recycling or reclamation of the material and/or its container.

- Disposal methods and containers
- Special precautions for landfill or incineration

Section 14 - Transport information

This section provides basic classification information for the preparation of a material for transporting/shipment.

- UN Number
- UN Proper Shipping Name
Which should be given under Other Names in Section 1.
- Class and subsidiary risk
Means the dangerous goods classes assigned to each substance listed in the Australian Dangerous Goods Code.
- Packing Group
Means the division of Dangerous Goods of Classes 3, 4, 5, 6.1, 8 and 9 into three groups according to the degree of hazard they present: 'I' (great danger), 'II' (medium danger) and 'III' (minor danger).
- Special precautions for user
- Hazchem Code
An emergency action code, of numbers and letters, which gives fire fighting information to emergency services. Its use is required by the ADG Code for dangerous goods in bulk.

Section 15 - Regulatory information

This section describes any other regulatory information on the material that is not provided elsewhere in the MSDS.

- The regulatory status of a material (including its ingredients) under relevant Australian health, safety and environmental legislation
- *Including where relevant*
 - *the poison schedule under the Uniform Scheduling of Drugs and Poisons (SUSDP);*
 - *any applicable prohibition/licensing requirements, including for carcinogens under Commonwealth or state legislation;*
 - *the Agricultural and Veterinary Chemicals Act 1988; and*
 - *the Industrial Chemicals (Notification and Assessment) Act 1989.*

Additional information

- Additional national and/or international regulatory information

Section 16 - Other information

This section provides information relevant to the preparation of the MSDS.

- Date of preparation or last revision of the MSDS

Additional information

- Key/legend to abbreviations and acronyms used in the MSDS
- Literature references
- Sources for data

Contacts for further information

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