

Compliance code

Hazardous substances

Edition 2

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This compliance code (**Code**) provides practical guidance for those who have duties or obligations in relation to hazardous substances under the *Occupational Health and Safety Act 2004* (**OHS Act**) and Occupational Health and Safety Regulations 2017 (**OHS Regulations**).

The Code was developed by WorkSafe Victoria (**WorkSafe**). Representatives of employers and employees were consulted during its preparation. It was made under the OHS Act and approved by Robin Scott MP, Minister for Finance.

Duty holders under the OHS Act and OHS Regulations should use the Code together with this legislation. This Code replaces the Code of Practice (No. 24) – *Hazardous Substances* (2000) which is no longer in force and effect.

While the guidance provided in the Code is not mandatory, a duty holder who complies with the Code will – to the extent it deals with their duties or obligations under the OHS Regulations – be taken to have complied with those duties or obligations.

If conditions at the workplace or the way work is done raise different or additional risks not covered by the Code, compliance must be achieved by other means. WorkSafe publishes guidance to assist with this at [worksafe.vic.gov.au](https://www.worksafe.vic.gov.au).

Failure to observe the Code may be used as evidence in proceedings for an offence under the OHS Act or OHS Regulations. However, a duty holder will not fail to meet their legal duty simply because they have not followed the Code.

A WorkSafe inspector may cite the Code in a direction or condition in an improvement notice or prohibition notice as a means of achieving compliance.

A health and safety representative (**HSR**) may cite the Code in a provisional improvement notice when providing directions on how to remedy an alleged contravention of the OHS Act or OHS Regulations.

Approval for the Code may be varied or revoked by the Minister. To confirm the Code is current and in force, go to [worksafe.vic.gov.au](https://www.worksafe.vic.gov.au).

Note: The *Dangerous Goods (Storage and Handling) Amendment (Notification) Regulations 2021* come into effect on 1 July 2021 (**Notification Regulations**).

This compliance code has not yet been updated to reflect the changes introduced by the Notification Regulations. Complying with the compliance code after 1 July 2021 may not necessarily mean compliance with a duty under the Notification Regulations. Information on the *Dangerous Goods Act 1985* and associated regulations can be found on [worksafe.vic.gov.au/dangerous-goods-act-and-regulations](https://www.worksafe.vic.gov.au/dangerous-goods-act-and-regulations).

Part 1 – Introduction

Purpose

1. The purpose of this Code is to provide practical guidance to duty holders on how to comply with their duties under the OHS Act and Part 4.1 of the OHS Regulations in relation to managing health and safety risks associated with the use of hazardous substances.

Scope

2. This Code provides information for duty holders about meeting their obligations under Part 4.1 of the OHS Regulations as well as providing information about how to identify hazards and control risks associated with hazardous substances. This Code also provides information for duty holders about compliance with the OHS Act, where relevant (eg an employer's duty to consult with employees).
3. It is not possible for this Code to deal with every risk associated with hazardous substances a duty holder may encounter at their workplace. The guidance in the Code needs to be considered with regard to the particular characteristics and circumstances of the workplace.

Application

4. This Code applies to employers, employees including independent contractors, self-employed persons, manufacturers and suppliers, including importing suppliers, of hazardous substances and to employers using hazardous substances in the workplace. Additionally, it may be useful for HSRs.

Note: The word **must** indicates a legal requirement that has to be complied with. The words **need(s) to** are used to indicate a recommended course of action in accordance with duties and obligations under Victoria's health and safety legislation. The word **should** is used to indicate a recommended optional course of action.

What are hazardous substances?

5. Hazardous substances are substances that have the potential to harm human health. A hazardous substance means a substance that satisfies the criteria for hazard classification set out in Part 3 (Health Hazards) of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), but does not include a substance that satisfies the criteria solely for one of the following hazard classes:
 - a) Acute toxicity – oral – category 5.
 - b) Acute toxicity – dermal – category 5.
 - c) Acute toxicity – inhalation – category 5.
 - d) Skin corrosion/irritation – category 3.
 - e) Serious eye damage/eye irritation – category 2B.
 - f) Aspiration hazard – category 2.
OHS Regulations r5

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6. The GHS is a single internationally agreed system of chemical classification and hazard communication published by the United Nations. It is intended for use primarily by manufacturers and importing suppliers. Employers, self-employed persons and employees, including independent contractors, using substances in the workplace will usually be able to identify a hazardous substance from the manufacturer's or importing supplier's label and safety data sheet (SDS) for the substance.
7. Hazardous substances may enter the human body in a number of ways, depending on the substance and how it is used. The major routes of exposure to hazardous substances in the workplace are inhalation, skin contact and absorption. Less frequently, substances may be ingested or injected into the body.
8. Hazardous substances may cause immediate or long-term health effects. Exposure may result in poisoning, irritation, chemical burns, sensitisation, cancer, birth defects or diseases of certain organs such as the skin, lungs, liver, kidneys and nervous system. The severity of the health effects depends on the substance and the dose absorbed.

Examples of hazardous substances include:

- acute toxins such as cyanide
- substances harmful after repeated or continued exposure such as mercury and silica
- corrosives such as sulfuric acid and caustic soda
- irritants such as ammonia
- sensitising agents such as isocyanates
- carcinogens (cancer-causing substances) such as benzene and vinyl chloride.

Sensitisation:

Some substances can cause a physical immune response in some people. These substances are called sensitisers and the development of an immune response is called 'sensitisation'.

Once a person has been sensitised to a substance, sensitisation may present itself as, for example, a skin rash, inflammation or a form of asthma. In some individuals sensitisation may be extremely severe. Once sensitised to a substance, an individual may react to very small exposures to the substance.

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Prohibited hazardous substances

OHS Regulations r153, Schedule 6

9. The OHS Regulations prohibit the use of abrasives containing more than one per cent of crystalline silica for abrasive blasting. OHS Regulations r153, Schedule 6
10. In addition, WorkSafe may determine a hazardous substance to be a prohibited substance by notification in the Victorian Government Gazette. At the date of the making this code, no additional substances were determined by WorkSafe. To confirm that no hazardous substances have been determined by WorkSafe since this Code was published, go to **worksafe.vic.gov.au**.
11. The supply and use of specified carcinogenic substances is restricted by the OHS Regulations. Carcinogenic substances are hazardous substances that can cause cancer.
12. The carcinogens listed in Schedule 10 of the OHS Regulations must only be used in laboratories where the person using the substance has obtained a licence to use that substance at that laboratory from WorkSafe or is an employee of a person holding such a licence. OHS Regulations r174(1) and (2)
13. Carcinogenic substances listed in Schedule 11 of the OHS Regulations must only be used at workplaces including laboratories, where the person using the substance (or their employer) has obtained a licence from WorkSafe. OHS Regulations r174(2) and (3)
14. Other hazardous substances may be prohibited or restricted by other Victorian legislation, such as EPA legislation, or by legislation in other jurisdictions.

The difference between hazardous substances and dangerous goods

15. Hazardous substances and dangerous goods are classified according to different criteria. Hazardous substances are classified on the basis of health effects, while dangerous goods are classified on the basis of physicochemical effects such as fire, explosion and corrosion, on property, the environment or people.
16. In Victoria, hazardous substances and dangerous goods are covered by separate legislation, each focused on controlling the different risks described above. Many hazardous substances are also classified as dangerous goods, and in these cases both sets of legislation apply. While there are overlaps in the classification of many substances, each piece of legislation complements the other, effectively ensuring the comprehensive control of all risks.

Manufacturers and suppliers of hazardous substances that are also classified as dangerous goods need to be aware of their additional, concurrent duties under the dangerous goods legislative framework. For example, the duty to placard according to the Dangerous Goods (Storage and Handling) Regulations 2012. Go to **worksafe.vic.gov.au** and the *Code of practice for the storage and handling of dangerous goods* for further information.

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Who has duties?

17. **Employers** must provide and maintain, so far as is reasonably practicable, a working environment for their employees that is safe and without risks to health. [OHS Act s21](#)
18. To ensure that employers provide a working environment that is safe and without risks to health, they must eliminate risks to health and safety so far as is reasonably practicable, and if it is not reasonably practicable to eliminate the risks to health and safety, reduce those risks so far as is reasonably practicable. [OHS Act s20](#)

For information about what *reasonably practicable* means, when complying with Part 3 of the OHS Act or the OHS Regulations, see the WorkSafe Position *How WorkSafe applies the law in relation to reasonably practicable* at worksafe.vic.gov.au.

19. Employers must, so far as is reasonably practicable, monitor conditions at any workplace under the employer's management and control. [OHS Act s22\(1\)\(b\)](#)
20. Employers must also, so far as is reasonable practicable, ensure that persons other than employees are not exposed to risks to their health or safety arising from the business activities undertaken by the employer. [OHS Act s23](#)
21. An employer's duties under section 21 and section 35 of the OHS Act extend to independent contractors engaged by the employer and any employees of an independent contractor working at the workplace. However, these extended duties are limited to matters over which the employer has control or would have control if there was not an agreement in place purporting to limit or remove that control. [OHS Act s21\(3\) and 35\(2\)](#)
22. Regulations that set out the way an employer complies with their duties to employees under section 21 and section 35 of the OHS Act also apply in respect to independent contractors engaged by the employer and any employees of the independent contractor in relation to matters over which the employer has control. [OHS Regulations r8\(1\)](#)
23. Employers have a number of specific duties under the OHS Regulations to manage risks associated with hazardous substances in the workplace, such as the duty to ensure that:
 - a) they obtain a current SDS on or before a hazardous substance is first supplied to their workplace [OHS Regulations r155](#)
 - b) a current SDS is readily accessible to any employee who may be exposed to the substance [OHS Regulations r156](#)
 - c) an SDS is not altered [OHS Regulations r157](#)
 - d) a container in which a hazardous substance is supplied to their workplace is labelled with the manufacturer's or importing supplier's label [OHS Regulations r158](#)
 - e) a container labelled under regulation 158 of the OHS Regulations, remains labelled until it has been cleaned or its contents neutralised, cured or chemically deactivated to the extent that it is not a risk to health [OHS Regulations r159](#)
 - f) a hazardous substance in plant (such as a pipe) or any plant that forms part of a manufacturing process is identified to employees who may be exposed to the substance [OHS Regulations r160](#)
 - g) containers of waste produced or generated at a workplace from a hazardous substance are identified [OHS Regulations r161](#)

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- h) a register of all hazardous substances supplied to the workplace is prepared and maintained [OHS Regulations r162](#)
 - i) any risks associated with hazardous substances in the workplace are controlled, so far as is reasonably practicable [OHS Regulations r163](#)
 - j) atmospheric monitoring [OHS Regulations r166](#) and health monitoring is carried out if required. [OHS Regulations r169](#)
24. If employers design or modify their workplace or any plant used at their workplace, they may also take on additional duties under the OHS Act. [OHS Act s27 to s28](#)
25. A **self-employed person** must ensure, so far as is reasonably practicable, that persons are not exposed to risks to their health or safety arising from the business activities of the self-employed person. [OHS Act s24 and OHS Regulations r11](#)
26. **Employees** while at work must take reasonable care for their own health and safety and that of others who may be affected by their acts or omissions in the workplace. Employees must also cooperate with their employer's actions to make the workplace safe, for example, by following any information, instruction or training provided. [OHS Act s25\(1\)](#)
27. **Manufacturers** and **importing suppliers** must:
- determine whether a substance meets the definition of a hazardous substance before it is first supplied to a workplace [OHS Regulations r143](#)
 - prepare an SDS for each hazardous substance before it is first supplied to a workplace [OHS Regulations r144](#)
 - ensure a copy of the current SDS for the hazardous substance is provided: to any person the substance is supplied to, at the time or before, it is first supplied to that person; and on request, to an employer who proposes to use the hazardous substance at a workplace [OHS Regulations r147](#)
 - ensure that substances are labelled correctly before the hazardous substance is supplied to a workplace. [OHS Regulations r149](#)
28. **A supplier, other than an importing supplier**, must ensure that the container in which the hazardous substance is supplied to a workplace is labelled with the manufacturer's or importing supplier's label. [OHS Regulations r151](#)

Key terms

A **manufacturer**, in relation to plant or a substance, is a reference to a person who manufactures that plant or substance and who knows, or ought reasonably to know, that the plant or substance is to be used at a workplace. [OHS Regulations r10](#)

A **supplier**, in relation to plant or a substance, is a reference to a person who supplies that plant or substance and who knows, or ought reasonably to know, that the plant or substance is to be used at a workplace (whether by the person supplied or anyone else). [OHS Regulations r10](#)

An **importing supplier**, in relation to a substance, means a person who first supplies or intends to first supply a substance in Victoria for use at a workplace, but does not include a person who manufactures the substance in Victoria, a wholesaler or retailer who has been supplied with the substance by another supplier in Victoria or retail warehouse operator. [OHS Regulations r5](#)

An **employer** means a person who employs

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one or more other persons under contracts of employment or training. [OHS Act s5\(1\)](#)

The risk management process

29. This Code outlines a **risk management process** (see Diagram 1) to help employers comply with their duties under the OHS Act and OHS Regulations. The risk management process involves the following steps:

- **Identifying** hazards associated with hazardous substances in the workplace (see Part 3.1 of this Code).
- **Assessing**, where necessary, any associated risks (if unsure of appropriate risk controls) (see Part 3.2 of this Code).
- **Controlling** risks associated with hazardous substances in the workplace (see Part 3.3 of this Code).
- **Monitoring, reviewing**, and where necessary, **revising** risk controls (see Parts 3.3 and 3.4 of this Code).

Note: There are certain circumstances where each step of the risk management process needs to occur, see Part 2 and 3 of this Code for further information.

Diagram 1 – The risk management process



Consultation

30. Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect, or are likely to directly affect them. This duty to consult also extends to independent contractors (including any employees of the independent contractor) engaged by the employer in relation to matters over which the employer has control. [OHS Act s35](#)

Note: The characteristics of the workplace will have an impact on the way consultation is undertaken. For example, consider:

- the size and structure of the business
- the nature of the work
- work arrangements (such as shift work)
- characteristics of employees (such as language or literacy).

Go to worksafe.vic.gov.au for more information on consultation.

31. An employer has a duty to consult with employees (including HSRs, if any) when, for example, identifying or assessing hazards or risks to health or safety at the workplace, making decisions about measures to control such risks and proposing changes that may affect the health or safety of employees at the workplace. [OHS Act s35](#)

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32. It is important to consult with your employees as early as possible when planning to:
 - introduce new work or change existing work
 - select new plant
 - refurbish, renovate or redesign existing workplaces
 - carry out work in a new environment.
33. Employers who are required to consult on a matter must share information about the matter with employees, including relevant contractors and HSRs (if any), give them a reasonable opportunity to express their views, and take those views into account before making a decision. If employees are represented by an HSR, the consultation must involve that HSR (with or without the involvement of the employees directly). If the employer and the employees have agreed to procedures for undertaking consultation, the consultation must be undertaken in accordance with those procedures. [OHS Act s35](#)
34. Employers also need to encourage employees and contractors to report any problems immediately so that risks can be managed before an injury occurs.
35. Employees and contractors may have practical suggestions or potential solutions that can be implemented.

Information, instruction, training and supervision

36. Employers must provide employees with any necessary information, instruction, training or supervision to enable them to perform their work in a way that is safe and without risks to health. This duty also extends to independent contractors (including any employees of the independent contractor) engaged by the employer in relation to matters over which the employer has control. [OHS Act s21\(2\)\(e\)](#)
37. The mix of information, instruction, training or supervision required will depend on the frequency and type of hazards in the workplace, and how much employees already know about the risks and necessary risk control measures.
38. Information, instruction and training needs to cover the nature of the hazards associated with hazardous substances used in the workplace including the need for risk control measures and how to properly use and maintain them. For example, employers need to ensure employees understand the hazards associated with hazardous substances in the workplace, including how to follow safety procedures, and use risk control measures implemented for their protection.
39. Employers must provide supervision where such supervision is necessary for safe work. [OHS Act 21\(2\)\(e\)](#) For example, employers need to provide supervision to employees when using new hazardous substances in the workplace. This is particularly important with employees who are more vulnerable in their work areas, such as new, inexperienced or young employees.
40. Where employees undertaking the work are new and inexperienced, such as young workers, it is often necessary to provide additional supervision.

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41. When providing information, instruction and training to employees and independent contractors it is important to include information about:
 - the risk management process
 - the information included on labels of containers of hazardous substances and the meaning and effect of that information
 - how to locate and use an SDS
 - what information is in an SDS
 - hazards and potential risks associated with hazardous substances to which employees may be exposed
 - appropriate work practices and procedures to be followed when using hazardous substances, including handling, storage and disposal
 - control measures, including information on the correct use and maintenance of risk controls
 - how to use, maintain and clean personal protective equipment (PPE)
 - emergency procedures, including any evacuation or special decontamination procedures
 - how to use any fire protection equipment
 - first aid and incident reporting procedures to be followed in case of injury or illness
 - the reasons for atmospheric monitoring and health monitoring (if required).
42. Training programs should be practical and 'hands on'. The structure, content and delivery of the training needs to take into account any special requirements of the employees and independent contractors being trained (eg specific skills or experience, disability, language, literacy and age).
43. Employers need to review their training programs regularly and also when:
 - there is a change to work processes, plant or equipment
 - there is an incident
 - new control measures are implemented
 - there is a request by an HSR
 - changes are made to relevant legislation, or
 - any other issues may impact on the way work is performed.Employers should also keep records of induction and training given to employees.
44. Refresher training needs to be provided as appropriate for a particular workplace. The frequency of refresher training should be determined having regard to the frequency with which employees and independent contractors are required to carry out tasks associated with hazardous substances in the workplace.

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Exclusions

OHS Regulations r140 and r141

Substances not related to a work activity

45. The OHS Regulations (and this Code) do not apply to the following substances where their use is **not** related to a work activity:
 - Food within the meaning of the *Food Act 1984*.
 - Therapeutic goods within the meaning of the *Therapeutic Goods Act 1989 (Cth)*.
 - Cosmetics.
 - Tobacco or products made of tobacco.
 - Toiletries and toilet products.
46. Products brought into the workplace by employees for their own personal use are not covered by Part 4.1 of the OHS Regulations.
47. However, OHS Regulations do apply to these products if their use (including production) is part of a work activity and they are classified as hazardous.

Substances covered by other legislation

48. Part 4.1 of the OHS Regulations does not apply to radioactive materials, cultures or preparations of pathogenic microorganisms or asbestos.
49. Radioactive substances and microorganisms are covered, respectively, by the *Radiation Act 2005* and the *Public Health and Wellbeing Act 2008*. Asbestos is covered by Part 4.4 of the OHS Regulations.

Inorganic lead compounds

50. Employers have duties under Part 4.1 of the OHS Regulations if organic lead compounds (such as lead alkyls) are used in their workplace and these compounds are classified as hazardous substances. Certain duties under Part 4.1 of the OHS Regulations do not apply to employers for inorganic lead compounds, lead metal or alloys. OHS Regulations r154(2)
51. Specific duties relating to the use of these types of substances are covered by Part 4.3 of the OHS Regulations.
52. Note that for manufacturers, importing suppliers and suppliers, duties under Part 4.1 of the OHS Regulations apply to all hazardous substances containing lead. See Part 2 of this Code for information about manufacturer and supplier duties.

Part 2 – Duties of manufacturers and suppliers

53. Manufacturers and importing suppliers must determine whether a substance meets the definition of a hazardous substance before it is first supplied to a workplace. [OHS Regulations r143](#)
54. If the substance is hazardous, the manufacturer or importing supplier must also prepare and provide an SDS. [OHS Regulations r144 and r148](#)
55. Manufacturers and importing suppliers of hazardous substances must also correctly label any container that contains a hazardous substance before the substance is supplied to a workplace. [OHS Regulations r149](#)
56. Substances supplied to a workplace for the purpose of determining whether they are hazardous do not need to be classified. SDS or labels compliant with the OHS Regulations do not need to be prepared in these circumstances. [OHS Regulations r142](#)
57. A supplier of a hazardous substance, other than an importing supplier, must ensure that the container in which the substance is supplied to a workplace in is labelled with the manufacturer's or the importing supplier's label. [OHS Regulations r151](#)
58. Division 2 of Part 4.1 of the OHS Regulations do not apply in relation to substances produced as wastes, either during the process of manufacture of the hazardous substance, or when the hazardous substance is used at a workplace, unless the waste is produced for sale or exchange to another workplace. [OHS Regulations r141\(3\) and \(4\)](#)
59. Hazardous substances produced as waste in the workplace need to be clearly identified.
60. It is likely that manufacturers and suppliers will also have their own employees whose health will need to be protected during the production, handling, storage or disposal of hazardous substances in the workplace. Employer duties are covered in Part 3 of this Code.

Determining hazardous substances

[OHS Regulations r143 and r5](#)

61. Manufacturers or importing suppliers must determine whether a substance is a hazardous substance before the substance is first supplied to a workplace using the criteria set out in Part 3 (Health Hazards) of the GHS, as modified by Schedule 7 of the OHS Regulations. The GHS provides decision logics, examples of classification of substances and mixtures, and illustrates how to apply the criteria.
62. However, a substance will not be considered hazardous under the OHS Regulations if it satisfies the GHS criteria solely for one or more of the following classes:
 - Acute toxicity – oral – category 5.
 - Acute toxicity – dermal – category 5.
 - Acute toxicity – inhalation – category 5.
 - Skin corrosion/irritation – category 3.
 - Serious eye damage/eye irritation – category 2B.
 - Aspiration hazard – category 2.

Part 2 – Duties of manufacturers and suppliers

Determining under equivalent legislation

OHS Regulations r143

63. If a manufacturer or importing supplier has already determined a substance to be hazardous under equivalent legislation, the substance does not need to be determined again. OHS Regulations r143(2)
64. Similarly, there is no need to prepare another SDS or label under the OHS Regulations if these have been prepared according to equivalent legislation. OHS Regulations r144(2)
65. However, a current SDS and label must be provided when supplying the substance. See paragraphs 79 – 81 for further information about providing a current SDS and labelling requirements. OHS Regulations r147 and r149

Equivalent legislation means legislation in another Australian jurisdiction (including the Commonwealth) relating to the use of hazardous substances in the workplace, for example the model Work Health and Safety Regulations that have been enacted by a number of state and territory jurisdictions.

Equivalent legislation may have different requirements to the OHS Regulations. Despite this, if a manufacturer or importing supplier has classified a substance, or prepared an SDS or label that is compliant with equivalent legislation, they will be considered compliant with the OHS Regulations.

Specific concentration limits for mixtures

OHS Regulations r5 and Schedule 7

66. The OHS Regulations specify cut-off values/concentration limits for some hazard classes in the GHS. In other cases, the cut-off values specified in the GHS will apply. These values and limits are prescribed in Schedule 7 of the OHS Regulations. The tables replace the specified tables in the GHS. The cut-off values and concentration limits in Schedule 7 show the amount of the hazardous ingredient in a mixture or article that would result in classification of the mixture.
67. The OHS Regulations set specific concentration limits for mixtures in the following GHS hazard classes:
 - Respiratory or skin sensitisers.
 - Carcinogens.
 - Reproductive toxicants.
 - Specific target organ toxicants single and repeat exposures.
68. The GHS and supporting guidance material can be accessed online at **worksafe.vic.gov.au**.

Part 2 – Duties of manufacturers and suppliers

Preparing an SDS

OHS Regulations r145

69. An SDS describes, for example, the identity, properties, health hazards, precautions for use and safe handling of a hazardous substance. It provides vital information for end users of hazardous substances, so that they know how to use these substances safely in the workplace.

What information must an SDS contain?

OHS Regulations r145

70. An SDS must be written in English, be legible and include the information listed below in Table 1.
71. The SDS needs to be clear and easy to understand. Technical jargon should be avoided as much as possible or be accompanied by a simple explanation for the term used – for example, 'hepatocellular carcinoma (cancer of the liver)'. Vague phrases such as 'may be dangerous', or 'safe under most conditions of use' should not be used because they can be misleading. Where appropriate, standardised hazard and precautionary statements, such as 'may cause cancer by inhalation', need to be used. A manufacturer or importing supplier may choose to prepare an SDS in appropriate languages in addition to English. More information about each of the items that must be included in an SDS is in Table 1.

Part 2 – Duties of manufacturers and suppliers

Table 1 – Items an SDS must contain OHS Regulations r145

SDS item	Description
Product identifier and chemical identity	<p>The product name and/or number of the hazardous substance, exactly as found on the label.</p> <p>Product identifiers provide a unique means by which the user can identify the hazardous substance. If one generic SDS is used to cover several minor variants of a hazardous substance, all product identifiers must be listed. In most cases, the SDS must also include the chemical identity (or chemical name) of the hazardous substance or its ingredients.</p>
Manufacturer or importer details	The name, address and telephone number of the manufacturer or importing supplier of the substance in Australia.
Emergency telephone number	An Australian telephone number where information about the substance can be obtained in the event of an emergency.
Date of preparation or last review	The date of preparation of the SDS, or the date of last review (whichever is later).
Hazard identification	<p>The appropriate hazard class or category of the substance must be indicated in accordance with the GHS, for example:</p> <ul style="list-style-type: none"> ▪ acute toxicity – oral – category 3 ▪ skin sensitiser – category 1.
Hazard statements and precautionary statements	<p>Hazard statements indicate the nature and degree of hazard posed by a hazardous substance (eg may cause allergy or asthma symptoms if inhaled) while precautionary statements describe recommended measures to minimise risks (eg avoid breathing dust/fume; in case of inadequate ventilation wear respiratory protection). More information about appropriate wording for hazard and precautionary statements can be found within the GHS.</p>
Composition of the substance and information on hazardous ingredients	<p>In most cases, this requires providing the chemical name (or chemical identity) of all ingredients that are classified as hazardous in a hazardous substance. However, a generic name may be used if the ingredient is commercially confidential and other specified criteria are met (see paragraph 73 of this Code).</p> <p>The SDS must specify the proportion or proportion ranges for each ingredient, in accordance with Schedule 8 of the OHS Regulations.</p>
First aid measures	<p>Explanation of first aid measures that should be taken in the event of an incident or exposure involving the hazardous substance. The information in the SDS should include:</p> <ul style="list-style-type: none"> ▪ first aid instructions for each relevant route of exposure ▪ description of expected immediate and delayed symptoms caused by exposure.

Part 2 – Duties of manufacturers and suppliers

SDS item	Description
Firefighting measures and accidental release measures	<p>Information about emergency procedures, including firefighting and accidental release measures, to be taken in the event of an incident involving the hazardous substance. This may include advice about:</p> <ul style="list-style-type: none">▪ suitable extinguishing equipment▪ PPE▪ methods and materials for containment and cleaning up.
Exposure control, including exposure standards, engineering controls and personal protection information	<p>Advice on measures that should be taken to minimise exposure to the hazardous substance and keep exposure below any relevant exposure standard. For example, this may include a description of appropriate engineering controls and PPE.</p> <p>The exposure standard for the hazardous substance, or each ingredient of the hazardous substance, must be listed where available.</p>
Information relating to handling and storage, including how the substance may be safely used	<p>Guidance must be provided on safe handling and storage of the hazardous substance to minimise risks of release and exposure. This should include advice on:</p> <ul style="list-style-type: none">▪ handling the substance safely (eg to avoid spills)▪ preventing handling with other incompatible substances▪ practices to avoid or restrict during use of the substance▪ hygiene requirements (eg washing hands and clothing)▪ safe storage (eg temperature, ventilation, humidity).
Disposal considerations	<p>Information on the most effective way to dispose of a hazardous substance safely. Information should be provided on the proper disposal, recycling or reclamation of the hazardous substance and its container, including:</p> <ul style="list-style-type: none">▪ disposal containers and methods▪ physical or chemical properties that may affect disposal options▪ effects of sewage disposal▪ special precautions for incineration or landfill.
Information relating to the physical and chemical properties of the substance	<p>Description of the physical and chemical properties of the hazardous substance as supplied. For example, the following properties should be listed on the SDS where relevant and the appropriate units of measure and/or reference conditions specified:</p> <ul style="list-style-type: none">▪ appearance▪ odour▪ melting/freezing point▪ vapour pressure/density▪ solubility▪ decomposition temperature.

Part 2 – Duties of manufacturers and suppliers

SDS item	Description
Stability and reactivity information	<p>Information about the stability and reactivity of the hazardous substance as a result of its physical and chemical properties. This should include:</p> <ul style="list-style-type: none">▪ the reactivity hazards of the substance, including the conditions under which the hazardous reactions may occur▪ information on the stability of the hazardous substance under normal and foreseeable storage and handling conditions▪ advice as to conditions to avoid (eg temperature, vibration, other physical stresses)▪ a list of any materials incompatible with the hazardous substance (ie that could react to produce a hazardous situation)▪ a list of any hazardous products that may be produced due to the decomposition of the substance during use, storage or heating▪ advice about what to do if an unstable state is reached. <p>Test data for the hazardous substance or its ingredients should be provided where available.</p>
Toxicological information, including health effects	<p>Toxicological information relevant to the health hazard category of the hazardous substance under the GHS. A concise but complete description of the various toxicological health effects consistent with the hazard classification must be provided. The SDS should include information on:</p> <ul style="list-style-type: none">▪ possible routes of exposure▪ early onset symptoms related to exposure▪ delayed health effects from exposure▪ exposure levels and health effects▪ interactive effects (eg where symptoms are worsened by drinking alcohol or taking medication, or where a pre-existing medical condition may increase risk).

Part 2 – Duties of manufacturers and suppliers

Disclosing ingredients of hazardous substances in SDS and on labels

OHS Regulations, Schedule 8

72. Manufacturers or importing suppliers must disclose the identity of an ingredient in a hazardous substance on the label and in the SDS of the hazardous substance, if the ingredient causes the correct classification of the substance to include a hazard class and hazard category referred to in Table 1 of Schedule 8 of the OHS Regulations. [OHS Regulations Schedule 8, clause 2](#)
73. If an ingredient of a hazardous substance must be disclosed according to Schedule 8, clause 2 of the OHS Regulations, a generic name may be used if:
- the ingredient causes the correct classification of the hazardous substance to include a hazard class and hazard category referred to in Table 2 of Schedule 8 of the OHS Regulations, and
 - the ingredient does not cause the correct classification of the hazardous substance to include any other hazard class and hazard category referred to in Table 1, Schedule 8 of the OHS Regulations; and
 - the identity of the ingredient is commercially confidential, and
 - there is no exposure standard for the ingredient.
- [OHS Regulations Schedule 8, clause 3](#)
74. If an ingredient of a hazardous substance does not satisfy the criteria for disclosure by its generic name, it must be disclosed by its chemical identity. [OHS Regulations Schedule 8, clause 3](#)
75. Manufacturers or importing suppliers are not required to disclose the name of ingredients that are not classified as hazardous under the OHS Regulations.

76. The chemical identity of an ingredient in a hazardous substance must be immediately provided to any registered medical practitioner if they request this information to assist with patient treatment and the ingredient is not otherwise disclosed on the label of the hazardous substance or in its SDS. [OHS Regulations r152](#)

Reviewing and revising an SDS

OHS Regulations r146

77. Manufacturers and importing suppliers of hazardous substances must review and, if necessary, revise the SDS for a substance as often as necessary to ensure the information is current and accurate and at least every five years. For example, an SDS would need to be reviewed if there was a change in the formulation of a product, or if new information on the health effects of a hazardous substance or its ingredients became available. If a review reveals that the SDS contains inaccurate or outdated information, it must be revised.
78. The only exception to reviewing and revising an SDS is if the hazardous substance has not been supplied to any person or premises for five years since the SDS was last prepared or revised. After any review, the SDS needs to be reissued with the review date.

Part 2 – Duties of manufacturers and suppliers

Providing an SDS

OHS Regulations r147

79. A manufacturer or supplier of a hazardous substance must provide a copy of the current SDS on or before the first occasion that the substance is supplied for use at a workplace. The SDS must be provided to any person to whom the substance is supplied and to any employer on request. An employer may request an SDS before the first supply of a hazardous substance to assist with planning for its intended use.

Example

Manufacturers and suppliers can provide an SDS by, for example:

- sending a hard copy
- emailing a PDF copy
- providing a direct working web link to the SDS.

80. There is no need to provide an SDS every time a hazardous substance is supplied to a workplace. However, if the SDS is reviewed, a copy must be provided on or before the first occasion the substance is supplied after the review. There is no requirement to send a copy of the revised SDS to all previous purchasers of the hazardous substance.

Exclusions

OHS Regulations r147(3)

There is no requirement to provide an SDS in the following circumstances:

- Retailers or retail warehouse operators are not required to provide an SDS to people who purchase hazardous substances in consumer packages.
- Persons supplying a substance to the fuel tank of a vehicle, to be consumed by that vehicle, for example at a petrol station, are not required to provide a copy of the SDS to purchasers.

Labelling

OHS Regulations r149

81. Labelling ensures that containers of hazardous substances can be readily identified, and provides basic information about the substance – its ingredients, hazards and precautions for safe use. Manufacturers and importing suppliers must ensure that all containers of hazardous substances are correctly labelled in accordance with regulation 149(3)–(5), of the OHS Regulations before being supplied to a workplace.

Exception There is no requirement to label a container of a hazardous substance if the container is supplied to a workplace for the purposes of affixing the necessary label.

What information must be on a container label?

OHS Regulations r149(3)

82. A label prepared for a hazardous substance under the OHS Regulations must be written in English and, at a minimum, contain the information included in Table 2, below.

Small containers

OHS Regulations r149(4)

If a hazardous substance is packed in a container that is too small for an attached label to contain all the information outlined in Table 2, it must contain, at a minimum: the product identifier of the hazardous substance, the name, address and telephone number of the Australian manufacturer of the hazardous substance or the importing supplier and a hazard pictogram or hazard statement consistent with the correct classification of the substance. It must also contain any other information described in Table 2 that is reasonably practicable to include.

Part 2 – Duties of manufacturers and suppliers

83. The label must be firmly secured to the container and all information must be legible. If the container is so small that the label cannot be placed on the actual container, the label can be attached by other means, such as a string tag around the neck of the container. More information about each of the items that must be included on a label is in Table 2.

Table 2: Items a label must contain OHS Regulations r149

Item	Description
Product identifier	The product identifier of the hazardous substance. Product identifiers provide a unique means by which the product user can identify the hazardous substance.
Manufacturer or importer details	The name, address and telephone number of the manufacturer or importing supplier of the substance in Australia.
The name and proportion of each hazardous ingredient in the hazardous substance	In most cases, the label must include the chemical name (or chemical identity) and proportion or proportion range of all ingredients classified as hazardous in a hazardous substance. However, a generic name may be used if the ingredient is commercially confidential and other specified criteria are met (see paragraph 73 of this Code).
Hazard pictogram	Any hazard pictogram consistent with the correct classification of the hazardous substance. Hazard pictograms can be found within the GHS.
Hazard statement, signal word and precautionary statement	<p>Any hazard statement, precautionary statement and signal word consistent with the correct classification of the substance.</p> <p>Hazard statements specify the nature and degree of hazard posed by a hazardous substance (eg may cause allergy or asthma symptoms if inhaled) while precautionary statements describe recommended measures to minimise risks (eg avoid breathing dust/fume; in case of inadequate ventilation wear respiratory protection).</p> <p>Signal words are used to indicate the relative level of severity of a hazard (eg 'Danger' for a more severe or significant hazard, or 'Warning' for less severe hazards). More information about appropriate wording for hazard identification can be found within the GHS.</p> <p>Note: With regard to regulation 149(4), if a hazardous substance is packed in a container that is too small for the attached label to include all the information required by regulation 149(3), the label should contain as much information as is reasonably practicable for it to include, having regard to the likelihood and degree of harm that may be caused by a substance.</p>

Part 2 – Duties of manufacturers and suppliers

Recognition of other labelling systems

OHS Regulations r150

84. Separate labelling in accordance with OHS Regulations r149 is not required if:

- containers have been labelled according to equivalent legislation in other Australian jurisdictions (including the Commonwealth) [OHS Regulations r150\(1\)\(a\)](#), or
- in the case of agricultural or veterinary chemicals, substances are labelled in accordance with the *Agricultural Labelling Code* and the *Veterinary Labelling Code* of the Australian Pesticides and Veterinary Medicines Authority (APVMA) and the label is in English, legible, firmly secured to the container and includes any hazard and precautionary statements consistent with the classification of the chemical [OHS Regulations r150\(1\)\(b\)](#), or
- the substance is a therapeutic good within the meaning of the *Therapeutic Goods Act 1989 (Cth)* and labelled in accordance with an order under section 10 of that Act in force at the time of labelling [OHS Regulations r150\(1\)\(c\)](#), or
- the substance is a poison or controlled substance within the meaning of the *Drugs, Poisons and Controlled Substances Act 1981* and the container is labelled according to the current Poisons Standard at the time of labelling. [OHS Regulations r150\(1\)\(d\)](#)

85. Further, a manufacturer or importing supplier does not need to label a substance in accordance with OHS Regulations r149 if the substance is:

- a veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code (AgVet Code)*, and
- listed in the current Poisons Standard, Part 4 – Schedule 4, if the substance is packaged and supplied in a form intended for direct administration to an animal for therapeutic purposes, or
- listed in Schedule 8 of the current Poisons Standard.

[OHS Regulations r150\(1\)\(e\)](#)

Schedule 4 and Schedule 8 veterinary chemicals are listed in the Poisons Standard (full legal title: the *Standard for the Uniform Scheduling of Medicines and Poisons*) which is available from Therapeutic Goods Administration, Department of Health website tga.gov.au.

86. If a substance labelled according to the *Agricultural Labelling Code* or the *Veterinary Labelling Code* requires statements that are the same, or substantially the same as the hazard and precautionary statements required under the GHS, a manufacturer or importing supplier does not need to include duplicate statements for that substance. [OHS Regulations r150\(2\)](#)

Part 2 – Duties of manufacturers and suppliers

87. In relation to a poison or controlled substance labelled according to the current Poisons Standard, a manufacturer or importing supplier does not need to comply with OHS Regulations r149 if the substance container has its original label and it is reasonably foreseeable that the substance will be used at a workplace only in a quantity and way that is consistent with household use and in a way that is incidental to the nature of the work carried out by a person using the substance. **OHS Regulations r150(1)(d)** For example, a cleaning agent such as methylated spirits or cloudy ammonia used for incidental spot cleaning in an office area, used in a manner similar to how it would be used in a household does not require separate labelling.
88. Hazardous substances imported from overseas or interstate that are not labelled appropriately will have to be labelled in accordance with the OHS Regulations before they are supplied for use at a workplace.
89. Importing suppliers may choose to 'over label' containers of hazardous substances to provide any information required under the OHS Regulations that is not included on the original label. For example, if a container holding a hazardous substance complies with the OHS Regulations in all respects except that it does not state the name of the Australian importing supplier, the original label could be retained and an additional label added to provide the name, address and phone number required.

Supplier's duty to ensure container is labelled

OHS Regulations r151

90. Suppliers (other than importing suppliers) must ensure that any container of a hazardous substance supplied for use at a workplace is labelled with the manufacturer's or importing supplier's label.

Part 3 – Duties of employers

Part 3.1 – Hazard identification

91. Employers will be able to identify the hazards associated with a hazardous substance by looking at its SDS. These must indicate whether a substance is hazardous. [OHS Regulations r145 and r149](#) Hazardous substances may also be produced in the workplace, see paragraphs 120 – 125 for further information about hazardous substances produced or generated in the workplace.
92. Employers must obtain a current SDS for each hazardous substance supplied for use in the workplace, prepare a register of hazardous substances and ensure containers and plant containing hazardous substances are appropriately labelled.

Consultation Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. This duty extends to independent contractors engaged by the employer and employees of the independent contractors. [OHS Act s35](#) See paragraphs 30 – 35.

Obtaining an SDS

[OHS Regulations r155](#)

93. Employers must obtain the current version of an SDS for hazardous substances used in their workplace on or before the first time the hazardous substance is supplied to the premises. [OHS Regulations r155](#) An SDS provides information about the hazards of the substance, how to use it safely and is prepared by manufacturers and suppliers.
94. Manufacturers and suppliers must provide an SDS with the first supply of the hazardous substance, after a review of the SDS, and on request. [OHS Regulations r144–148](#)
95. If an employer is not satisfied with the SDS provided to them when supplied with a hazardous substance, they should raise their concerns with the manufacturer or supplier. More detail about what information the SDS must contain is in paragraphs 70 – 71 of this Code.
96. If hazardous substances are purchased from a retailer or retail warehouse operator for use in a workplace, an employer needs to obtain a current SDS from an upstream supplier such as the manufacturer or importing supplier of the substance (their contact details should appear on the label).
97. Suppliers who are retailers or retail warehouse operators are not required to provide an SDS for hazardous substances that are supplied in consumer packages [OHS Regulations r147\(3\)](#) (although they must still have the SDS available for their employees).

Note: a consumer package means a package that is intended for retail display and sale.

Part 3 – Duties of employers

Providing an SDS

OHS Regulations r156 and r157

98. An employer must ensure that the current SDS for a hazardous substance is **readily accessible** to any employees who could be exposed to the substance. [OHS Regulations r156](#)
99. An employer needs to keep copies of SDSs in a location convenient to the work area in which the substance is used. Employers should also keep SDSs in languages other than English if appropriate. Commercially available SDS databases may be used provided they contain the manufacturer or importing supplier's current SDSs.
100. An employer must not alter information in an SDS prepared by the manufacturer or importing supplier. [OHS Regulations r157](#)
101. If the employer chooses to provide additional information, this information needs to be consistent with the information contained in the SDS and be marked clearly to indicate that it is not part of the original.

Keeping a register

OHS Regulations r162

102. Employers must prepare and maintain a register for all hazardous substances supplied to their workplace. A register must contain a list of the product identifiers of all hazardous substances supplied to the workplace and be accompanied by the SDS for each of these substances.
103. Employers need to update the register when:
 - new hazardous substances are introduced to the workplace
 - the use of an existing hazardous substance is discontinued
 - the manufacturer or supplier provides a revised SDS.
104. Employers need to ensure that all SDSs in the register or otherwise accessible at the premises have issue dates within the last five years. This is because manufacturers or importing suppliers are required to review, and where necessary, revise SDS as often as necessary to ensure it remains current and accurate or at least every five years. If the use of a substance in the workplace is permanently discontinued and the product has been removed from the workplace, it should be removed from the register.
105. The register must be readily accessible by any employee who may be exposed to a hazardous substance at the workplace. [OHS Regulations r162\(3\)](#)
106. The register needs to be kept in a central location and a **readily accessible** copy of it needs to be in each relevant work area. The register may also be computerised if employees know how to access and use the computerised system.
107. Retailers and retail warehouse operators do not need to keep a register of hazardous substances supplied in consumer packages where they are intended for retail sale and not intended to be opened on the premises of the retailer or retail warehouse operator. [OHS Regulations r162\(4\)](#)
108. However, an employer who is a retailer or retail warehouse operator is not exempt from the duty to obtain a current SDS on or before the first supply of each hazardous substance (that is used or intended for retail sale in the employer's workplace). These employers are also not exempt from the duty to prepare and maintain a register in relation to each hazardous substance opened on the premises of their workplace. [OHS Regulations r162, note](#)

Part 3 – Duties of employers

The difference between a register and a manifest

A **register** provides employers and employees with a source of information to assist in the management of hazardous substances in the workplace and must be prepared and maintained in accordance with [OHS Regulations r162](#).

A **manifest** is different to a register and must be kept for certain 'manifest quantities' of dangerous goods under the Dangerous Goods (Storage and Handling) Regulations 2012. The primary purpose of a manifest is to provide information (such as site maps and the types and quantities of dangerous goods stored) to the fire brigade in the event of an emergency. See the Dangerous Goods (Storage and Handling) Regulations 2012 and the *Code of practice for the storage and handling of goods* for further information on the duty to keep a manifest.

In addition to a manifest for "manifest quantities", the Dangerous Goods (Storage and Handling) Regulations 2012 also require the occupier of a premises where dangerous goods are stored and handled, to maintain a register for those dangerous goods. See the Dangerous Goods (Storage and Handling) Regulations 2012 and the *Code of practice for the storage and handling of goods* for further information on a register.

For hazardous substances that are also dangerous goods, it is sufficient to list these goods in one register prepared in accordance with the OHS Regulations. That is, an employer may establish and maintain a single register for both dangerous goods and hazardous substances if all dangerous goods at the premises are also hazardous substances. See appendix B for an example of a Dangerous goods/Hazardous substances register.

Labelling

[OHS Regulations r158 and r159](#)

109. Employers must ensure that all containers of hazardous substances supplied to their workplace are labelled with the manufacturer's or importing supplier's label. [OHS Regulations r158\(1\)](#)
110. Employers must also ensure labels on containers of hazardous substances supplied to their workplace are legible and are not removed from the container, defaced or altered. [OHS Regulations r158\(2\)](#) See paragraphs 82 – 83 of this Code for more details about what information a label must contain.
111. If a label on a container is illegible, incorrect or otherwise not in keeping with the OHS Regulations, the container should be removed from use and appropriately stored until it is appropriately labelled.
112. Employers must ensure that containers of hazardous substances remain labelled until they have been cleaned to the extent that it is not a risk to health, or the contents have been neutralised, cured or chemically deactivated to the extent that any residue is not a risk to health. [OHS Regulations r159](#)

Decanted substances

[OHS Regulations r158\(3\) and \(4\)](#)

113. Employers must ensure that containers that contain decanted hazardous substances are clearly labelled with the product identifier of the substance. If it is not reasonably practicable to label the container with the product identifier, an employer must use another means of identifying the substance. [OHS Regulations r158\(3\)](#)

Part 3 – Duties of employers

114. If a decanted substance is used immediately, and the container is cleaned to the extent that it is not a risk to health, or its contents are neutralised, cured or chemically deactivated to the extent that it is not a risk to health, the container does not need to be labelled according to [OHS Regulations r158](#)
115. Written, stick-on or painted labels are acceptable for labelling containers, as long as they are legible and durable. Alternatively, spare copies of container labels may be available from the manufacturer or supplier of the hazardous substance if the product has been supplied within the last five years.

Note: Hazardous substances should never be decanted into food or drink containers, even when labelled.

116. If it is not practicable to label the container into which the substance is decanted with the product identifier, for example, because the container is too small, other means can be used to identify the contents of the container, for example, by a laboratory sample number. Training needs to be provided to ensure that employees including independent contractors understand the meaning of any identification method used. See paragraphs 36 – 44 of this Code for further information on information, instruction, training and supervision.

Hazardous substances in plant

[OHS Regulations r160](#)

117. An employer must ensure that a hazardous substance contained in a pipe, piping system, process vessel, reactor vessel or any plant that forms part of a manufacturing process is identified to employees who may be exposed to the substance. [OHS Regulations r160](#) Identification provides information in the event of an accidental rupture of spill, or when maintenance or cleaning of the system is required.

118. A system or plant dedicated to a particular hazardous substance may be identified by colour coding in keeping with a published technical standard such as AS1319 – *Safety signs for the occupational environment* or AS 1345 – *Identification of the contents of piping, conduits and ducts*. Training needs to be provided to ensure that employees including independent contractors understand the colour coding/ identification method used. See paragraphs 36 – 44 of this Code for further information on information, instruction, training and supervision.

Containers of waste

[OHS Regulations r161](#)

119. Employers must ensure that any containers of waste produced or generated from hazardous substances are identified. The identification needs to reflect the nature of the waste as closely as possible for example the label may identify the substance as 'chlorinated solvent waste', 'acid waste', or 'caustic waste'. However, there is no requirement to produce an SDS or label for substances generated as by-products or wastes in the workplace, unless these are supplied for use in another workplace.

Hazardous substances produced or generated in the workplace

[OHS Regulations r154\(1\)\(b\)](#)

120. Hazardous substances may be generated from the processing of non-hazardous substances in a workplace. These by-products can be in the form of dusts, fumes, mists, liquids, vapours or gases.

Part 3 – Duties of employers

121. The OHS Regulations list a number of hazardous substances that arise from the processing of non-hazardous substances. These are:
- welding fumes
 - grain dust
 - wood dust
 - silica dust (including from grinding or cutting silica-containing materials, such as granite); and
 - lead dust (including from the hand sanding of lead paint). OHS Regulations r154(1)(b)

122. Consistent with OHS Regulations r154(3)(b), in relation to the hazardous by-products listed in paragraph 121, employers do not need to, for example:

- provide an SDS OHS Regulations r155
- ensure that an SDS is readily accessible OHS Regulations r156
- ensure that information in an SDS is not altered OHS Regulations r157
- ensure a hazardous substance container that is supplied to their workplace is labelled or remains labelled. OHS Regulations r158 and r159

Note: Manufacturer and supplier duties will apply to the substances listed in paragraph 121 if these substances are produced or generated in the workplace for the purpose of sale or exchange to another workplace. See paragraph 58 and Part 2 of this code.

Employers also have a general duty under section 21(2)(e) of the OHS Act to provide any necessary information to employees to enable them to perform their work in a way that is safe and without risks to health.

123. However, employers do have a duty to control risks associated with the hazardous substances listed in paragraph 121. That is, risks associated with hazardous substances, including by-products such as welding fumes and grain dust, must be eliminated, so far as is reasonably practicable.

OHS Regulations r154(4)(b),
OHS Regulations r163(1)

124. If a risk associated with a hazardous substance, including those substances listed above in paragraph 121, cannot be eliminated, it must be reduced, so far as is reasonably practicable.

OHS Regulations r163(2),(3),(4)

125. Further, in relation to a risk associated with the hazardous substances listed in OHS Regulations r154(1)(b), employers must:

- identify containers of waste OHS Regulations r161
- control risks OHS Regulations r163
- review risk controls OHS Regulations r164
- ensure the exposure standard is not exceeded OHS Regulations r165
- carry out atmospheric monitoring OHS Regulations r166
- provide results of atmospheric monitoring OHS Regulations r167
- keep records of atmospheric monitoring. OHS Regulations r168

Note: There are other hazardous substances not listed in OHS Regulations r154(1)(b) that may be generated from the processing of non-hazardous substances in a workplace. For example, fumes generated from heating and processing plastics may contain hazardous substances such as formaldehyde and acrolein. Employers have a general duty to provide a safe working environment under the OHS Act, which may extend to controlling risks associated with these substances.

Part 3 – Duties of employers

Part 3.2 – Assessing risks

126. Employers must, so far as is reasonably practicable, eliminate any risk associated with hazardous substances in their workplace. **OHS Regulations r163(1)**
127. If it is not reasonably practicable to eliminate a risk associated with a hazardous substance, employers must reduce the risk so far as is reasonably practicable. **OHS Regulations r163(2)** See Part 3.3 of this Code for further information on controlling risk.

Consultation Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. This duty extends to independent contractors engaged by the employer and employees of the independent contractors. **OHS Act s35** See paragraphs 30–35.

128. As part of the risk management process, a risk assessment may be unnecessary if knowledge and understanding of the risk, and how to control it already exist. For example, an employer in a ceramics workplace who knows there is a risk of exposure to silica powder by inhalation and that this risk can be controlled through installation of local exhaust ventilation systems and making sure employees and contractors wear appropriate PPE can go straight to implementing risk controls without conducting an assessment.
129. However, if employers are unsure how to control a risk associated with the use of a hazardous substance, a risk assessment can help.

Routes of exposure by which a hazardous substance can affect health

130. Employers need to consider how exposure to a hazardous substance might occur. This is necessary to understand the level of risk from likely or potential exposure scenarios in the workplace. For example, exposure may occur by:
- *inhalation* (ie breathing in the substance)
 - *ingestion* (ie swallowing, either directly or indirectly as a result of the substance settling on food, or from eating or smoking with contaminated hands)
 - *absorption* through the skin or eyes, either from direct contact or from contaminated surfaces or clothing
 - *injection* into the body by high pressure equipment or contaminated sharp objects.

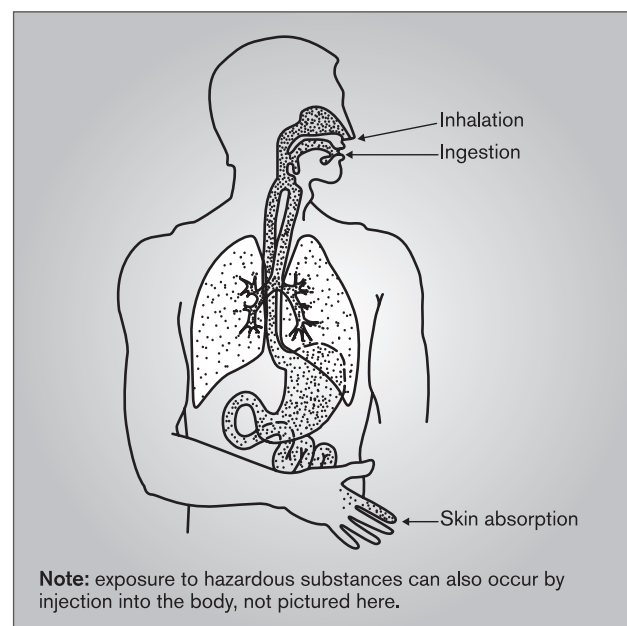


Figure 1: Routes of exposure

Part 3 – Duties of employers

131. Employers need to consider the health effects for each route of entry or contact identified, such as whether:
- adverse health effects, either immediate or delayed, could occur from a single exposure to the substance
 - adverse health effects could result from repeated, even low level, exposure over a period of time
 - the substance could cause sensitisation or allergic reactions
 - the substance could cause cancer
 - the substance could be harmful to human reproduction
 - any harmful effects of the substance may be increased if exposure to the substance takes place in the presence of other substances.
132. Employers need to think about how the above factors vary for different substances.

Example Silica and sodium hydroxide (caustic soda) are both hazardous substances, yet each has very different properties that make them hazardous.

Silica is hazardous principally because of the long-term, irreversible lung effects (such as silicosis) that can arise from repeated exposure to excessive concentrations. Its hazardous properties are associated with inhalation, so the evaluation of risk is based on the potential for breathing in the silica dust rather than other routes of exposure (eg contact with the skin).

In contrast, exposure to high concentrations of sodium hydroxide can lead to immediate effects which include irritation or burning of the skin, eyes and respiratory tract. Its hazardous properties relate to exposure via skin or eye contact and inhalation. Assessment of risks to health for caustic soda must therefore consider the potential exposure through all of these routes.

Form and concentration of the hazardous substance

133. It is important to consider the form in which the substance may be present, such as solid, liquid or gas. Some substances may be harmless in some forms such as a block of metal, but very hazardous in another, such as a fine dust or fume that can be readily inhaled.
134. The concentration of hazardous substances is also an important factor in the overall risk. Generally the more concentrated or pure a substance is the more hazardous it will be.

Chemical and physical properties of the hazardous substance

135. The chemical and physical properties of a hazardous substance need to also be considered when assessing risks.
136. For example, the chemical and physical properties of hazardous substances can be hazardous in the following ways:
- Gases or liquids with low boiling points or high vapour pressures (eg propane, xylene, acetone) can give rise to high airborne concentrations in most circumstances.
 - Liquids with high boiling points (eg oils) are likely to create a hazardous airborne concentration if they are sprayed on or heated.
 - Substances with a very low or high pH (ie acids and bases respectively) are corrosive to the skin and eyes.

Part 3 – Duties of employers

137. Sense of smell should not be solely relied on to detect a hazardous substance. Some substances give off distinctive odours which can alert people to the presence of a hazardous substance. For example, hydrogen cyanide has a smell of bitter almonds. However, not everyone can smell hydrogen cyanide and higher concentrations can overload nasal receptors resulting in employees and contractors being unable to detect it. Other substances may have no odour at all, so smell should not be relied on as a means of detecting the presence of a hazardous substance.

Consider how exposure can occur

138. When considering how exposure may occur, employers need to consider the nature of the work involving hazardous substances. Employees and contractors can come into contact with a hazardous substance and any waste, intermediate or product generated from the use of a hazardous substance if they:

- work with it directly
- are in the vicinity of where it is used or likely to be generated
- enter an enclosed space where it may be present
- disturb deposits of the substance on surfaces (eg during cleaning)
- come into contact with contaminated surfaces.

139. The following considerations need to be taken into account when considering how employees may be exposed to hazardous substances:

- The way tasks or processes are performed – noting that employees and contractors may not all perform the same work task in the same way.
- Which work activities involve routine and frequent exposure to hazardous substances (such as daily cleaning).
- What happens when non-routine work (such as maintenance and repair) is performed, such as production of one-off items or repair operations.
- The impact of changes to work conditions such as changes in volume of production or adverse weather conditions.
- The quantity of the substance used.
- The risk controls in place and their effectiveness.

Estimating exposure to the hazardous substance

140. Once an employer has investigated how and for how long employees and independent contractors might be exposed to a particular hazardous substance, they can use this information to estimate the level of exposure. The employer needs to consider what they know about the nature of the substance, the quantities used, the frequency and duration of exposure for different employees or contractors, and the effectiveness of the risk controls already in place.

141. An estimation of the amount of exposure to hazardous substances can sometimes be obtained by observation. For example, employers might look for evidence of fine deposits on surfaces, or the presence of dust, mists or fumes visible in the air – for example in light beams.

Part 3 – Duties of employers

142. An indication of the airborne concentrations of hazardous substances can often be obtained by simple tests, such as indicator tubes or dust lamps. However, in most cases the amount of exposure may vary throughout the day, so such tests may not provide accurate estimates of exposure therefore monitoring may be required. [OHS Act s22](#), [OHS Regulations r166](#) and [r169](#)

143. Part 3.4 of this Code provides more information on atmospheric monitoring and health monitoring, including biological monitoring.

Evaluate the risk of harm

144. To assess the risk (or likelihood) that harm will occur, employers should review the SDS, historical records and information about past incidents at their workplace, similar workplaces and similar types of industries. Employees and contractors are a very useful source of information as they may provide information about symptoms connected to work with hazardous substances.

145. Where an employer determines there is a risk of harm or injury, measures for preventing or reducing exposure to the hazardous substance must be implemented, as described in Part 3.3 of this Code.

146. An employer has duties to control risks associated with a hazardous substance, even where an employer is not sure whether there is a likelihood of injury, illness or disease from exposure to it. An employer needs to seek further information to inform themselves about any known hazards associated with the substance and safe exposure levels.

147. It may be necessary to carry out atmospheric monitoring or health monitoring – more information about monitoring is available in Part 3.4 of this Code. Until there is certainty about the risks of a hazardous substance, all reasonably practicable steps need to be taken to eliminate, or if this is not reasonably practicable, reduce exposure so far as is reasonably practicable.

Ensuring exposure standards are not exceeded

[OHS Act s21](#), [OHS Regulations r165](#)

148. An employer must ensure that employees and contractors are not exposed to an atmospheric concentration of a hazardous substance above the exposure standard (if any) for the hazardous substance or any of its ingredients. Refer to the SDS to determine if there is an exposure standard for the hazardous substance or any of its ingredients.

What is an exposure standard?

[OHS Regulations r5](#)

149. Exposure standard means an exposure standard set out in the *Workplace Exposure Standards for Airborne Contaminants*, published by Safework Australia on its Internet site. [OHS Regulations r5](#)

150. An exposure standard represents the airborne concentration of a particular substance in a person's breathing zone that must not be exceeded. Exposure standards are based on the airborne concentrations of individual substances that, according to current knowledge, should neither impair the health of, nor cause undue discomfort to, nearly all people. The exposure standard for a hazardous substance is recorded on an SDS.

Part 3 – Duties of employers

151. There are three different types of exposure standards:
- Eight-hour time-weighted average – this represents an atmospheric concentration averaged over an eight-hour working day and applies to a 40-hour working week.
 - Short term exposure limit – this represents an atmospheric concentration averaged over a 15 minute period.
 - Peak limitation – this represents a peak or maximum concentration that should not be exceeded at any time during a working day.

Note: Some hazardous substances have an eight-hour weighted average exposure standard and a short term exposure limit.

152. Exposure standards do not represent 'no effect' levels at which every person can be guaranteed adequate protection. Given the range of individual susceptibility, a small proportion of people exposed to concentrations at or below the exposure standard may suffer mild and transitory discomfort and in some cases exhibit symptoms of illness.
153. An employer must ensure that an employee's exposure to a hazardous substance does not exceed the exposure standard. [OHS Regulations r165](#)
154. Employers must also, where reasonably practicable, eliminate the risk associated with the use of a hazardous substance, or if this is not reasonably practicable, reduce the risk so far as is reasonably practicable. [OHS Regulations r163](#)
155. This means that, where reasonably practicable, exposure should be reduced further, even where exposure is below the exposure standard.

156. Even if there is no exposure standard for a hazardous substance, its use may still pose a risk to health. In these circumstances, employers need to, where reasonably practicable, eliminate exposure or otherwise reduce exposure so far as is reasonably practicable. If exposure cannot be eliminated, risks associated with the substance need to be controlled in accordance with the hierarchy of controls set out in OHS Regulations r163.

Part 3.3 – Risk control

157. There is a general duty under the OHS Regulations to control any risk associated with hazardous substances at the workplace so far as reasonably practicable.

Consultation Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. This duty extends to independent contractors engaged by the employer and any employees of the independent contractor. [OHS Act s35](#) See paragraphs 30 – 35.

The hierarchy of control

[OHS Regulations r163](#)

158. The ways of controlling risks associated with hazardous substances in the workplace are ranked from the highest level of protection and reliability to the lowest. This ranking is known as the hierarchy of control (see Table 3).

Part 3 – Duties of employers

159. Employers must, so far as is reasonably practicable, eliminate any risk associated with hazardous substances at the workplace. If it is not reasonably practicable to eliminate a risk associated with hazardous substances in the workplace, the employer must reduce the risk so far as is reasonably practicable. Controlling the risk may involve a single control measure or a combination of two or more different controls.

Table 3 – The hierarchy of control

OHS Regulations r163

Level	Action
Eliminate any risk associated with hazardous substances OHS Regulations r163(1)	Eliminate the use of the hazardous substance by, for example, using a physical fastening system instead of a solvent based adhesive.
Reduce the risk associated with hazardous substance with one or more of the following: <ul style="list-style-type: none"> ▪ substitution OHS Regulations r163(2)(a) ▪ isolation OHS Regulations r163(2)(b) ▪ engineering controls OHS Regulations r163(2)(c) 	<p>Substitute the substance with something less hazardous, or the same substance in a less hazardous form, for example, use a detergent in place of a chlorinated solvent for cleaning.</p> <p>Isolate people from exposure to the substance, for example, place operators in a positive pressure cabin that prevents airborne contaminants entering.</p> <p>Use engineering controls to reduce the generation of substances, for example, use partially enclosed and ventilated spray booths or fume cupboards.</p>
Reduce the risk associated with a hazardous substance using administrative controls OHS Regulations r163(3)	Implement systems of work that help to reduce exposure to hazardous substances , for example, reduce the number of people exposed to a hazardous substance by performing a task outside of work hours.
Reduce the risk associated with a hazardous substance by providing PPE equipment OHS Regulations r163(4)	Provide PPE to protect people from exposure , for example, provide gloves, chemical resistant glasses, face shields, respirators.

Part 3 – Duties of employers

Eliminating the risk

160. The primary duty is to eliminate any risk associated with hazardous substances in the workplace. This may be done by removing the hazardous substance or hazardous work practice that gives rise to the risk.
161. Examples of elimination include use of:
- a physical process rather than a chemical process to clean an object, such as the use of ultra-sound, high pressure water or steam cleaning rather than solvent washing
 - water-based rather than solvent-based paints or powder coating
 - clips, clamps, bolts or rivets instead of an adhesive
 - hot melt or water-based adhesives instead of solvent-based adhesives.

Controlling the risk

162. In some cases it may not be possible to eliminate the risk associated with a hazardous substance. In these cases, one or more of the risk controls below must be used to reduce the risk so far as is reasonably practicable. [OHS Regulations r163](#)
163. Employers must consult, so far as is reasonably practicable, with their employees, HSRs (if any) and independent contractors, when making decisions about how to control risks. [OHS Act s35](#) Consulting with employees is likely to result in better risk control measures because it gives them the opportunity to contribute ideas, participate in trials and mock-ups for new risk control measures, and is likely to improve the uptake of risk control measures when they are implemented. In some instances, discussions with different people in the supply chain (eg suppliers) may also assist.

164. When investigating risk control measure options, employers need to also consider whether a risk control measure will introduce additional risks.

Substitution

165. Substitution involves replacing a hazardous substance with a less hazardous substance, or a substance in a less hazardous form, for example:
- using a brush for painting rather than spray painting, which creates a mist
 - using a detergent instead of a chlorinated or volatile solvent for degreasing purposes
 - minimising vapour generation by using solvents with higher boiling points and lower vapour pressure
 - purchasing hazardous substances in a less hazardous form (eg pellet, paste or slurry form instead of a powder, or using a more dilute form of the substance).

Isolation

166. Isolation involves separating the hazardous substances from persons or property by either distance or a physical barrier. Examples of isolation include:
- closed systems such as those used during the processing and transfer of flammable liquids in petroleum refineries, or the use of glove boxes or glove bags (see Figure 2)
 - placing a process, or part of it, within an enclosure which may also be fitted with exhaust extraction to remove contaminants
 - isolating operations in one room with access restricted to properly protected personnel
 - placing operators in a positive pressure cabin that prevents airborne contaminants entering
 - distancing workers from hazardous substances and any substances generated by their use.

Part 3 – Duties of employers



Figure 2: An inflatable glove bag is an example of an isolation control.

Engineering controls

167. Engineering controls are physical controls (eg plant) that reduce the generation of substances, suppress or contain substances, or limit the area of contamination in the event of spills and leaks. For example, an abrasive blasting cabinet (see Figure 3).

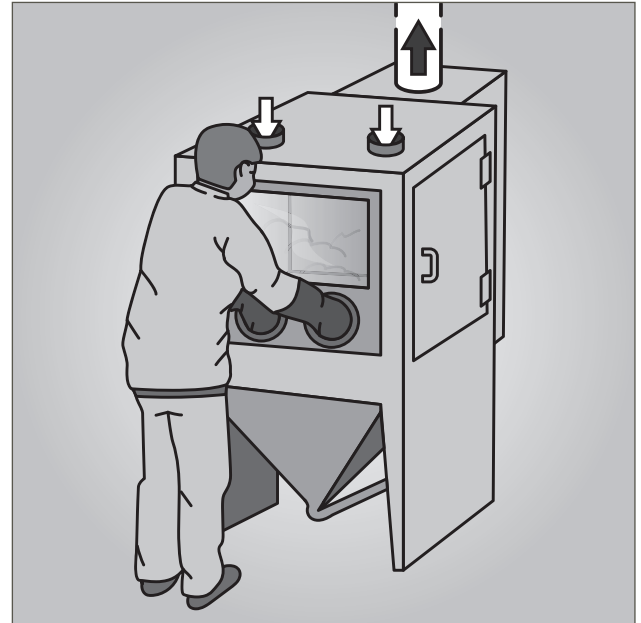


Figure 3: An abrasive blasting cabinet is an example of an engineering control.

168. For example, local exhaust ventilation is an engineering control that may be used in workplaces where hazardous substances are present in the form of airborne contaminants. Local exhaust ventilation removes airborne contaminants from the working environment before they reach the breathing zone of the operator. The design of a local exhaust ventilation system should be undertaken by specialists such as engineers or occupational hygienists to ensure the system operates effectively and efficiently (see Figure 4 below).

169. Other examples of engineering controls include using:

- robots to minimise operator exposure, for example, spraying in coating operations
- partially enclosed and ventilated spray booths or fume cupboards
- fully enclosed ventilation booths.

Part 3 – Duties of employers

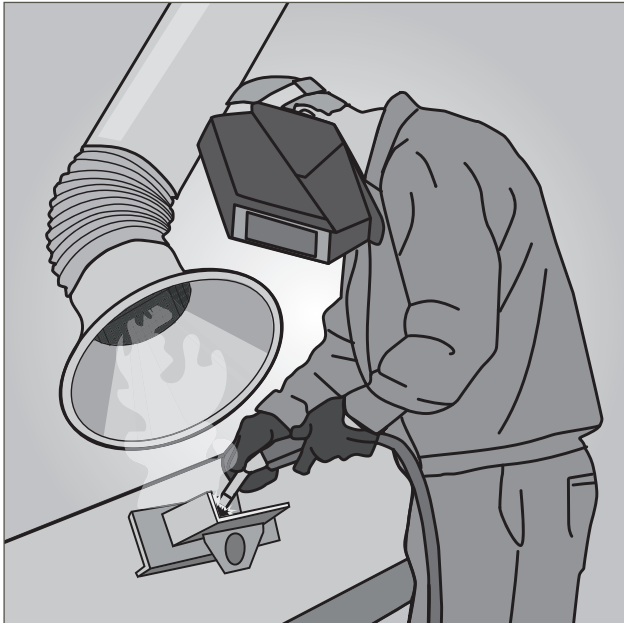


Figure 4: A local exhaust ventilation system with a movable hood is an example of an engineering control.

Administrative controls

170. If it is not reasonably practicable to either eliminate or reduce risk as far as reasonably practicable with the higher order controls (substitution, isolation, engineering controls), an employer must reduce it further using administrative controls, so far as is reasonably practicable, and then (if a risk still remains) through the use of PPE, so far as is reasonably practicable.

OHS Regulations r163

171. Administrative controls involve using systems of work and work procedures to reduce risk. Administrative controls must only be used where higher order control measures are not reasonably practicable, or to supplement other control measures when a risk still remains.

172. Examples of administrative controls include:

- reducing the number of people exposed to the substance (eg by performing the task out of normal work hours or by restricting access to certain areas)
- reducing the duration and/or frequency of exposure through specific work procedures (eg job rotation)
- reducing the period of time in which a substance could escape into the work area (eg by minimising the time that mixers, reactors or ovens are open to the environment both during and after use)
- good housekeeping, including regular cleaning of work areas
- changing packaging material to reduce exposure during handling (eg purchasing liquids in ready-to-use packages instead of decanting from large containers)
- providing appropriate means for the safe interim storage of wastes containing hazardous substances
- using vacuuming or wet sweeping methods to suppress dust that may be generated during dry sweeping
- keeping containers of hazardous substances or rags soaked with these substances tightly lidded when not in use
- cleaning up spills immediately
- prompt cleaning of residues from empty containers that have held hazardous substances
- prohibiting eating, drinking and smoking in potentially contaminated areas
- providing suitable washing facilities.

Part 3 – Duties of employers

Personal protective equipment (PPE)

173. PPE involves using protective clothing, respiratory equipment, footwear and headwear to reduce risk. Examples of PPE include:
- full-length overalls
 - aprons
 - abrasion or chemical-resistant gloves
 - dust masks
 - respirators or breathing apparatus
 - safety footwear
 - chemical-resistant boots
 - goggles
 - face shields.
174. In most circumstances, PPE should not be relied on to control risk. It must be used if all other reasonably practicable control measures have been put in place and a risk still remains, or as an interim protection until higher level controls are implemented. [OHS Regulations r163\(4\)](#)
175. There may also be situations where the use of other higher order controls is not practicable, for example during some infrequent maintenance operations where the short duration may make other control measures impracticable.
176. For some high risk activities, such as spray painting, abrasive blasting and some emergency response actions, PPE needs to always be used to supplement higher level control measures.
177. Employers should obtain information on the selection of appropriate PPE and its correct use from the SDS. When choosing the most appropriate PPE, employers need to consider:
- whether it provides the required level of protection from the risks associated with the particular hazardous substance and/or task
 - whether it is suitable for the wearer's size and build, and
 - the wearer's need for mobility, dexterity, clear vision and communication.
178. All PPE provided needs to be suitable for use with the hazardous substances and maintained in a clean and serviceable condition.
179. Given PPE relies heavily on users following instructions and procedures correctly, it may be necessary to provide a greater level of training and supervision when using this control. Practical demonstrations in how to use, fit and maintain the PPE is an effective form of training. Once trained, observe employees and contractors using PPE to ensure it is being used, maintained and stored correctly.

Part 3 – Duties of employers

Implementing risk controls

180. Once employers identify and investigate risk control options, they need to decide on and implement the most suitable control.
181. Some risk controls can be implemented straightaway (eg providing gloves to cleaners using a hazardous disinfectant), while other risk controls (eg investigating and implementing the use of a less hazardous product) may take longer to put in place. In the meantime, temporary or interim controls need to be used.
182. In many cases, it will be necessary to put multiple risk controls in place to ensure that risk is reduced so far as reasonably practicable. For example, the following risk controls may be put in place to control risks to employees and contractors working in a vehicle spray painting workshop where spray painting is used:
 - Installation of a spray booth with downdraft ventilation (engineering control) to perform colour matching and spray painting tasks.
 - Installation of automated gun cleaning equipment (isolation and engineering control) to clean spray painting guns.
 - Ensuring paints and solvents are always stored in lidded containers when not in use (administrative control).
 - Ensuring employees and contractors use PPE including a supplied air respirator, overalls and gloves to further reduce risks while working in the spray booth.

Maintaining risk controls

OHS Regulations r18

183. Employers must ensure that control measures are properly installed (if applicable), used and maintained.
OHS Regulations r18 The purpose of maintaining control measures is to ensure that they perform as originally intended and continue to prevent or adequately control exposure of employees and contractors to hazardous substances.
184. Maintenance of control measures need to include, for example:
 - frequent inspections
 - visual checks to ensure risk controls that rely on human behaviour are being properly applied by employees
 - testing of equipment
 - preventative maintenance of engineering controls and PPE
 - any necessary remedial work to ensure physical controls continue to operate effectively.
185. Employers should have a maintenance procedure in place to ensure that any defects in control measures are detected as early as possible.

Part 3 – Duties of employers

Review and revision of risk controls

OHS Regulations r164

186. Employers must **review** risk controls to make sure they are working as planned, and revise them if necessary in the following circumstances:

- before any alteration is made to a system of work that is likely to result in changes to risk associated with the use of hazardous substances (eg where the concentration of a particular hazardous substance used in the workplace is increased)
- if advice is received from a registered medical practitioner that adverse health effects have been identified by health monitoring
- following a notifiable incident involving hazardous substances eg an incident that results in a person requiring medical treatment within 48 hours of exposure to a substance, or injury requiring immediate inpatient treatment in a hospital
- if for any other reason, the risk control measures do not adequately control the risks, or

- after receiving a request for review from an HSR. An HSR can make a request if they believe, on reasonable grounds, that:
 - any of the circumstances listed above exist
 - the employer has failed to properly review the risk controls, or
 - in conducting a review of or revising the risk controls, the employer has failed to take into account any of the circumstances listed above (eg the HSR believes that the employer has failed to consider a change to a work system that may result in an increase in risks, during their review of risk controls).

187. Employers can review the effectiveness of risk controls by, for example, conducting regular safety inspections and asking for feedback from employees utilising the risk controls.

Go to [worksafe.vic.gov.au](https://www.worksafe.vic.gov.au) for more information about incident notification and duties of employers to report fatalities, serious injuries and incidents.

Part 3 – Duties of employers

Part 3.4 – Atmospheric monitoring and health monitoring

188. Employers are subject to a number of specific duties to monitor exposure to hazardous substances in the workplace. See Part 3.2 for information about assessing exposure to hazardous substances.

Consultation Employers must, so far as is reasonably practicable, consult with employees and HSRs, if any, on matters related to health or safety that directly affect or are likely to directly affect them. This duty extends to independent contractors engaged by the employer and any employees of the independent contractor. [OHS Act s35](#) See paragraphs 30 – 35.

Atmospheric monitoring

OHS Regulations r166

189. Atmospheric monitoring involves the use of suitable sampling and analytical techniques to obtain an estimate of the level of airborne contaminants (eg gases, vapours, dusts, fumes and mists) inhaled by employees or contractors. The results of the monitoring can then be compared to a relevant exposure standard to determine if exposure to a substance is excessive.
190. Atmospheric monitoring must be performed when there is an exposure standard for the hazardous substance or any of its ingredients and:
- there is uncertainty (based on reasonable grounds) as to whether the exposure standard may be exceeded, or
 - monitoring is needed to determine if there is a risk to health.

191. Examples of situations where atmospheric monitoring should be carried out include:
- it is not clear whether new or existing risk controls are effective (such as when a hazardous substance is being used for the first time, or in a different way)
 - where risks to health are largely managed through administrative controls (eg safe systems of work)
 - symptoms have been reported that might be related to the use of the substance.
192. If it is obvious there is a risk to health, priority needs to be given to controlling the risk, rather than carrying out atmospheric monitoring just to confirm the presence of that risk. However, once controls have been put in place, it may be necessary to check their effectiveness by performing atmospheric monitoring. Atmospheric monitoring may also help to work out the type and level of risk control needed.

Exception

OHS Regulations r166(2)

Atmospheric monitoring is not required for a hazardous substance if health monitoring is also required by the OHS Regulations for that substance, and that health monitoring includes biological monitoring. This is because biological monitoring takes into account all routes of exposure while atmospheric monitoring only considers exposure through inhalation.

Part 3 – Duties of employers

Conducting atmospheric monitoring

193. Personal atmospheric monitoring needs to be performed in the breathing zone of the employee or contractor for an appropriate period of time, to ensure the sample is representative of exposure.
194. Atmospheric contaminants in a workplace are likely to vary from day to day and process to process. Levels of exposure may be affected by the layout of the workplace and the location of the particular workstation, the way individual employees or contractors operate, ambient conditions such as temperature and general ventilation, and variations in rates of production. To obtain the most useful information, consider:
- who, how and where to sample (feedback from employees and contractors may help when considering this)
 - how long and how often to collect samples for
 - under what conditions to sample
 - who should do the monitoring and interpret the results.

Interpreting the results of atmospheric monitoring

195. Interpreting the results of atmospheric monitoring requires a good understanding of exposure standards. The interpretation process may have to take into account working shifts longer than eight hours, the potential for other forms of exposure, and exposure to other substances. Atmospheric monitoring only tests for exposure through inhalation, which may not always represent an employee or contractor's total exposure to a substance.

196. The results of static or fixed position monitoring should not be used as an indicator of actual exposure to a substance. However, in certain circumstances, static or fixed position monitoring may help in the design or assessment of the effectiveness of risk controls, for example, to determine whether a local exhaust ventilation system is working.

Suitably Qualified

Employers must, so far as is reasonably practicable, employ or engage persons who are suitably qualified in relation to occupational health and safety to provide advice to the employer concerning the health and safety of employees of the employer. [OHS Act s22\(2\)\(b\)](#)

The WorkSafe position on *Employing or engaging suitably qualified persons to provide health and safety advice*, 2008, provides that suitably qualified means having the knowledge, skills and experience to provide advice on the issues impacting the health and safety of employees of the employer. The type of person required will depend on the circumstances. Sometimes a person with formal qualifications will be needed, at other times industry experience may be sufficient.

In relation to atmospheric monitoring a suitably qualified person may include occupational hygienists, engineers and chemists, or the manufacturers/suppliers of hazardous substances.

For more information go to the WorkSafe position at worksafe.vic.gov.au.

Part 3 – Duties of employers

Action required after atmospheric monitoring

197. If monitoring results indicate that an exposure standard is or may be exceeded, or that existing control measures have deteriorated or are not effective, prompt action needs to be taken to reduce exposure. Control measures need to be restored or improved as soon as possible. This may involve providing portable or temporary ventilation, adopting modified work practices, providing PPE or ceasing work while normal control measures are restored to the required level of effectiveness.
198. If the results of atmospheric monitoring show that the level of exposure is below the recommended exposure standard, it is still necessary to consider whether it is practicable to reduce exposure further.
199. An employer must provide the results of any atmospheric monitoring at the workplace as soon as reasonably possible to any employees who has been, or who may be, exposed to the hazardous substance that was the subject of the monitoring. [OHS Regulations r167](#)

Records of atmospheric monitoring

[OHS Regulations r168](#)

200. Employers must keep a record of the results of atmospheric monitoring for a period (not exceeding 30 years) that is determined by WorkSafe or if no period has been determined by WorkSafe, 30 years. WorkSafe may specify different periods of time for retaining records of atmospheric monitoring for different hazardous substances or different classes of hazardous substances.
201. Employers must ensure that records of atmospheric monitoring are readily accessible to any employee who has been or who may be, exposed to the hazardous substance that is the subject of the monitoring. [OHS Regulations r168\(3\)](#)
202. The records of monitoring may be kept in any form, as long as they are accessible to any employee who has been, or may be, exposed to the substance that is the subject of monitoring.
203. Employers should make sure that the record of results of monitoring are presented in plain English and contains sufficient details to determine:
- the substances concerned
 - when the monitoring was done and by whom
 - what type of monitoring was done (eg personal or static sample, full shift or short term sample) and the duration of monitoring
 - sampling techniques/equipment and analytical methods used
 - where samples were taken, the operations in progress at the time and, in the case of personal samples, the names of those individuals concerned, details of the tasks performed and the duration of these tasks
 - what the results were and whether they reflected normal operating conditions
 - conclusions about the effectiveness of any control measures and where necessary, any action taken as a consequence of the monitoring results.

Part 3 – Duties of employers

Health monitoring

OHS Regulations r169

204. Health monitoring is the process of monitoring the health of employees exposed to certain hazardous substances for which there are known and acceptable health monitoring procedures. The main purpose of health monitoring is to detect adverse changes to health due to exposure to hazardous substances in the workplace.
205. Health monitoring can help to evaluate the risk to health from hazardous substances and to evaluate the effectiveness of risk controls. Periodic health monitoring may be appropriate in cases where failure or deterioration of the control measures may result in serious adverse health effects. However, it should never be used as an alternative to the implementation and proper maintenance of risk controls.

Types of health monitoring

206. The types of health monitoring procedures used may include:
- biological monitoring (eg measurement and evaluation of the presence of substances or their metabolites in blood, urine or exhaled air)
 - medical tests, such as lung function tests
 - medical examinations
 - a review of past and present medical and work histories
 - a review of medical records and workplace exposure.
207. These procedures are not mutually exclusive and the results from one procedure may indicate the need for additional or different procedures.
208. Tests need to be valid, sensitive and specific enough to detect adverse effects, and to enable those effects to be linked to the degree of exposure. Health monitoring procedures need to be safe, easy to perform, acceptable to employees and where possible, non-invasive. There needs to be criteria for interpreting the data obtained.

Part 3 – Duties of employers

When is health monitoring required?

OHS Regulations r19(3) and r169(1)

209. The OHS Regulations require an employer to provide health monitoring (at the employer's own expense) for employees when:

- they are exposed to any hazardous substance listed in column 2 of Tables 1 and 2 of Schedule 9 or a hazardous substance that WorkSafe has determined to be a hazardous substance for which health monitoring is required, and
- there is a reasonable likelihood of an adverse health effect occurring under the particular conditions of work at the workplace.

At the time of publication the following substances were listed in Schedule 9 as substances requiring health monitoring:

- Acrylonitrile
- Arsenic (inorganic)
- Benzene
- Cadmium
- Chromium (inorganic)
- Creosote
- Crystalline silica
- Isocyanates
- Mercury (inorganic)
- 4,4' – methylene bis 2-chloroaniline (MOCA)
- Organophosphate pesticides
- Pentachlorophenol (PCP)
- Polycyclic aromatic hydrocarbons (PAH)
- Thallium
- Vinyl chloride
- Lead.

Employers should note that the Schedule may be amended from time to time.

Part 3 – Duties of employers

210. Examples of situations where health monitoring needs to be carried out include where an employee is exposed to a scheduled hazardous substance and:

- the risk to health is largely or primarily controlled through lower level control measures such as the use of PPE or administrative controls
- symptoms have been reported which are likely to be related to the use of the substance
- incidents or near misses (eg spillages or leakages) have occurred when using the hazardous substance.

211. Further guidance on methods of health monitoring is available at worksafe.vic.gov.au.

Requirements when carrying out health monitoring

212. Employers must ensure that health monitoring is carried out under the supervision of a registered medical practitioner, a report of the health monitoring is prepared by the registered medical practitioner and a copy is given to the employer. [OHS Regulations r169\(2\)](#) The registered medical practitioner should be appropriately trained in occupational medicine. The medical practitioner should also have an understanding of the employees' work activities.

213. Employers need to:

- provide the medical practitioner with access to a list of the scheduled substances for which employees are required to have health monitoring and a copy of the SDS for those hazardous substances
- permit the medical practitioner to have access to any relevant assessment reports

- explain to employees why health monitoring is being performed and what is involved, and ensure they are aware that reports are confidential

- make acceptable arrangements for employees to participate in the health monitoring program (eg by allowing them time to see the medical practitioner).

214. The health monitoring report must include any indications of adverse health effects identified by the registered medical practitioner that may be attributed to the hazardous substance and any recommendations relating to the need for the employer to take measures to ensure that the employee is not exposed to the substance for a specified time. [OHS Regulations r169\(2\)\(c\)\(i\)](#) and (ii) It must also include an interpretation of the results of the health monitoring, including a statement as to whether the registered medical practitioner thinks the employee should continue working with the hazardous substance. [OHS Regulations r169\(2\)\(c\)\(iii\)](#)

215. If the medical practitioner reports a health monitoring result that may be related to exposure to a hazardous substance in the workplace, the employer must review and, where necessary, revise risk controls for that substance. [OHS Regulations r164\(1\)\(b\)](#)

216. If the report recommends that an employee should not be exposed to a substance for a specified period of time or should only work under specified conditions the employer needs to follow these recommendations. For example, the employee may need to be assigned to alternative work or another location where exposure to the substance will not occur. This needs to be done after consultation with the employee, the relevant HSR (if any) and the medical practitioner.

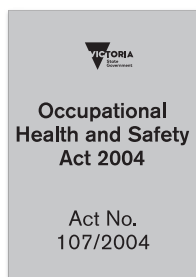
Part 3 – Duties of employers

Records of health monitoring

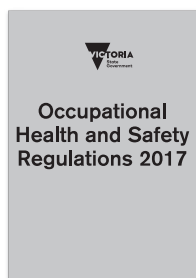
OHS Regulations r170 and r171

217. If a health monitoring report includes any recommendations under regulation 169(2)(c)(ii) relating to measures to ensure employees are not exposed to the substance for a specified time, a copy of the report must be submitted to WorkSafe.
OHS Regulations r170
218. An employer must also keep any health monitoring reports given to them by a registered medical practitioner following health monitoring for a period (not exceeding 30 years) that is determined by WorkSafe or if no period has been specified by WorkSafe, 30 years.
OHS Regulations r171
219. WorkSafe may specify different periods of time for retaining records of atmospheric monitoring for different hazardous substances or different classes of hazardous substances.

Appendix A – The Compliance Framework



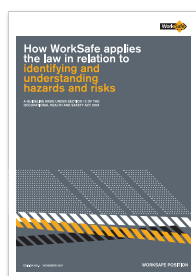
The Occupational Health and Safety Act 2004 (OHS Act) sets out the key principles, duties and rights in relation to occupational health and safety.



The Occupational Health and Safety Regulations 2017 (OHS Regulations) specify the way in which a duty imposed by the OHS Act must be performed, or prescribe procedural or administrative matters to support the OHS Act (eg requiring licences for specific activities, the keeping of records or giving notice).



Compliance codes provide practical guidance to duty holders. If a person complies with a provision of a compliance code, they are deemed to comply with the OHS legislative duty covered by the code provision. However, compliance codes are not mandatory, and a duty holder may choose to use some other way to achieve compliance.



WorkSafe positions are guidelines made under section 12 of the OHS Act that state how WorkSafe will apply the OHS Act or OHS Regulations or exercise discretion under a provision of the OHS Act or OHS Regulations. WorkSafe positions are intended to provide certainty to duty holders and other affected parties.



Non-statutory guidance includes information published by WorkSafe aimed at building people's knowledge and awareness of OHS issues, risks to health and safety, and the disciplines and techniques that can be applied to manage and control risks. Non-statutory guidance is not mandatory, nor does it provide any *deemed to comply* outcomes for duty holders. This guidance does, however, form part of the *state of knowledge* about OHS.

Appendix B – Hazardous substances / Dangerous goods register

Product Name	Location or process where product is used	Is the product a hazardous substance?	Is product a dangerous good?	Current Safety Data Sheet (SDS)?	Actions/Comments



WorkSafe Agents

Agent contact details are all available at
worksafe.vic.gov.au/agents

Advisory Service

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Information in your language

For information about WorkSafe in your own language, call our Translating and Interpreting Service (TIS National) on **131 450**.