

A step by step guide for

Managing chemicals in the workplace

June 2017



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This publication is based on the following source material:

Occupational Health and Safety (Hazardous Substances) Regulations 2017 (Vic)
Code of Practice for Hazardous Substances, No. 24, 1 June 2000 (Vic)
Dangerous Goods (Storage and Handling) Regulations 2012 (Vic)
Code of Practice for the Storage and Handling of Dangerous Goods, September 2013 (Vic)

This guidance has been reviewed and updated for the sole purpose of amending year and regulation references relating to the Occupational Health and Safety Regulations, in line with amendments which came into effect on 18 June 2017.

Introduction

The purpose of this guide is to help employers to manage chemicals safely, and in doing so to comply with the relevant aspects of the Victorian Occupational Health and Safety Regulations 2017 and the Dangerous Goods (Storage and Handling) Regulations 2012. Dangerous goods that are considered explosives are covered by separate regulations. Specific requirements that apply to explosives are not covered in this booklet.

The combined aim of the Occupational Health and Safety Regulations and the Dangerous Goods (Storage and Handling) Regulations is to protect people and property from risks associated with the use and storage of chemicals. To achieve this, the regulations impose duties on manufacturers, importing suppliers (importers), suppliers and employers dealing with hazardous substances and dangerous goods. A summary of the duties is outlined in this guide. Approved codes of practices and compliance codes for both regulations are also available to help various parties to understand the regulatory requirements and comply with them. *As this document is only intended as a guide, reference should be made to the regulations themselves if there is uncertainty about particular legal requirements.*

This booklet suggests ways in which you can manage the hazards and risks posed by the use of chemicals classified as hazardous and/or dangerous goods. Many substances are classified as both hazardous substances and dangerous goods. In these cases, both regulations apply and should be considered at the same time. Employers who manufacture, import and supply chemicals to workplaces should also refer to the booklet titled *A step by step guide for manufacturers, importers and suppliers of hazardous substances and dangerous goods* produced by WorkSafe Victoria.

Managing chemicals safely requires consultation, commitment and resources in the form of funds, people and time. To undertake the tasks outlined in this booklet and to achieve a safe workplace in relation to chemicals, you will need to provide adequate resources, and involve employees and health and safety representatives throughout the process.

How to use this guide

This guide provides a step by step approach to managing chemicals safely with a number of easy to follow instructions. Key tasks associated with each step are shown on the left side of the page. A more detailed explanation of the task and suggestions on how to go about it are shown in the shaded area on the right side of the page. Depending on your level of knowledge, you can either follow the prompts on the left, or use the additional guidance provided in the shaded areas. Sample forms, checklists and details of where to go for further information are provided in the appendices.

What is a hazardous substance?

Hazardous substances are substances that have the potential to harm human health. A substance is defined by the OHS Regulations as hazardous if it meets the criteria for hazard classification set out in Part 3 (Health Hazards) of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (3rd, 4th or 5th revised edition), with some exceptions.

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.

What are dangerous goods?

Dangerous goods are substances and articles (eg matches, car batteries) classified on the basis of immediate physical or chemical effects such as fire, explosion, corrosion, oxidation, spontaneous combustion and poisoning that can harm property, the environment or people. They may be solids, liquids, pure substances or mixtures. Dangerous goods are defined in the *Dangerous Goods Act 1985* and listed in the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (ADG Code).

Many chemicals are classified as both hazardous substances and dangerous goods.

Introduction

What are the key duties of manufacturers, importers and suppliers?

The Occupational Health and Safety Regulations 2017 and the Dangerous Goods (Storage and Handling) Regulations 2012 require manufacturers and importers to:

- determine if substances supplied are hazardous and/or dangerous goods
- prepare safety data sheets (SDSs) and labels for substances classified as hazardous and/or dangerous goods
- prepare package markings and packaging for substances classified as dangerous goods
- ensure that the condition of dangerous goods is in accordance with the *Commonwealth Transport of Dangerous Goods by Road or Rail Regulations 2007* before they are supplied to any person
- review and revise SDSs as often as required to ensure accuracy and every five years
- provide a current SDS to any person to whom the substance is supplied and to any employer on request
- disclose commercially confidential information to a registered medical practitioner on request.

Suppliers (excluding retailers or retail warehouse operators) are required to:

- provide a current SDS to any person to whom hazardous substances or dangerous goods are supplied for use at a workplace and to any employer on request
- ensure containers in which substances are supplied are labelled/marked with the manufacturer's or importer's label, including appropriate safety warnings.
- ensure containers of dangerous goods do not, or will not, leak and that the dangerous goods are in good condition.

What are the key duties of employers?

The Occupational Health and Safety (Hazardous Substances) Regulations 2017 and the Dangerous Goods (Storage and Handling) Regulations 2012 require employers (or more broadly occupiers under the dangerous goods framework) to:

- ensure that prohibited hazardous substances are not used
- obtain a copy of the current manufacturer's or importer's SDS for all hazardous substances/dangerous goods supplied to the workplace and ensure that workers have access to them
- ensure all containers of hazardous substances/dangerous goods supplied are labelled/ marked with the manufacturer's or importing supplier's label
- ensure decanted or transferred hazardous substances/dangerous goods are labelled as required
- ensure hazardous substances/dangerous goods in systems/pipework are identified
- set up a hazardous substances/dangerous goods register
- eliminate or reduce risks associated with the use of hazardous substances/dangerous goods as far as is practicable
- for dangerous goods, undertake specific risk control duties associated with: design; workers and visitors; stability and interaction of goods; plant and structures; spill control; and dangerous atmospheres. Prepare for incidents and emergencies and undertake specific duties in relation to incidents. Ensure storage and processing areas are placarded where required
- for hazardous substances, carry out atmospheric monitoring and health monitoring in certain circumstances
- provide employees with information, instruction, training and supervision
- consult with health and safety representatives under certain circumstances
- undertake additional duties if scheduled carcinogens or threshold quantities of dangerous goods are stored or used.

12 Steps to managing chemicals

Planning phase

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12 Steps to managing chemicals: Planning phase

Planning phase

Step 1: Decide who is responsible for key tasks and plan action

A person or group of people must be given responsibility for managing chemicals and ensuring all legal requirements are met. Tasks must be planned to make the process manageable and effective.

Appoint a person or team to oversee or coordinate the use and/or storage of chemicals

Decide who is going to oversee what needs to be done.

The person or team should have the authority to allocate resources, roles and responsibilities, and to consult relevant employees so that the best person/s are selected for the job. They should ensure that the person/s selected are committed to the task.

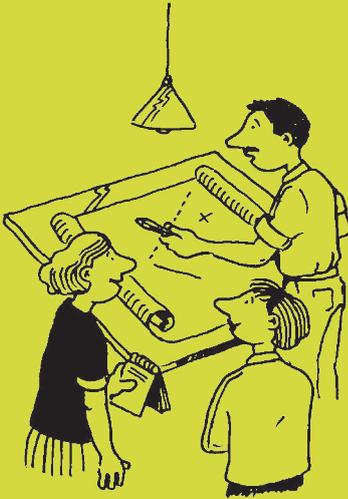
The coordinator or team needs to consult with, and involve, key persons such as supervisors, health and safety representatives, and purchasing officers so that they can contribute to managing the use or storage of chemicals in the workplace.

Set up a plan that outlines what needs to be done, by whom and when

The plan should outline who does what tasks and when.

Other tasks may be required but at minimum decide (and record if desired) who will:

- establish a consultation process – when, how, with whom, on what
- provide information/instruction and training
- identify substances being used and stored
- review safety data sheets (SDSs) and labels to check which substances are hazardous or dangerous goods
- establish and maintain a hazardous substances/dangerous goods register
- check if SDSs are accessible to relevant persons/groups
- ensure containers, packages, and systems such as pipes are adequately labelled/marked or identified
- assess risks to people, property and the environment
- put safety measures in place (including specific measures for dangerous goods) where required
- supervise or conduct further testing if required (eg atmospheric monitoring and/or health monitoring)
- determine if scheduled carcinogens (cancer causing substances) and threshold levels of dangerous goods are used on site
- apply for licences or notify WorkSafe Victoria if required
- document activities where required
- engage consultants where necessary.



12 Steps to managing chemicals: Planning phase



Where necessary, provide training to persons given roles and responsibilities

If staff do not have the knowledge or skills to undertake the tasks listed above, training will need to be provided either internally or externally. A flexible training resource kit titled *Hazardous Substances in the workplace* is available from WorkSafe Victoria to assist this process.

Also refer to the WorkSafe Victoria publication *Getting Started with Workplace Health and Safety: An introduction to Health and Safety Responsibilities, Roles and Functions, Training, Information and Records* for further guidance.

Inquire about suitable external training where required. Refer to Appendix 5 for information sources/contacts



Engage consultants where necessary

Use consultants in areas where you do not have in-house expertise to carry out particular tasks.

Refer to the WorkSafe Victoria publication *Getting Started with Workplace Health and Safety: An Introduction to Workplace Consultation* for guidance.

If you are using a consultant:

- ensure that they have the skills, knowledge and experience to do the job, and that they are familiar with the legal requirements
- work closely with them to ensure that your needs are met. Involve your own staff throughout the process, particularly key managers/supervisors and health and safety representatives
- make sure you understand what the consultant is recommending or implementing, as you will be responsible for the recommendation or action when you adopt it.

Hazard identification phase

Step 2: Identify all chemicals stored and used

It is important for you to know exactly what chemicals are being used and/or stored at your workplace so that you can work out which chemicals are hazardous or dangerous goods.



Identify all substances / products used and stored at the workplace



Identify and list substances used and/or stored at the workplace. A sample register shown in Appendix 1 may assist the process.

Substances can be identified by talking to employees and checking:

- labels of containers
- inventories, stocktake lists, manifests and purchasing records
- areas where substances are used and stored
- any existing SDSs.

This is a good opportunity to dispose of empty containers and products that are no longer used.

12 Steps to managing chemicals: Hazard identification phase

Step 3: Obtain and review Safety Data Sheets

Apart from labels, the safety data sheet (SDS) is the basic information source for most chemicals. SDSs are sometimes known by other names such as safety sheets or data sheets.

SDSs should provide:

SDS item	Description of what SDS must contain
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	<p>The name, address and telephone number of the manufacturer or importing supplier of the substance in Australia.</p>
Emergency telephone number	<p>An Australian telephone number where information about the substance can be obtained in the event of an emergency.</p>
Date of preparation or last review	<p>The date of preparation of the SDS, or the date of last review (whichever is later).</p>
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 statement(s) and precautionary statement(s)	<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 page 15 of this Code).</p> <p>The SDS must specify the proportion or proportion ranges for each ingredient, in accordance with Schedule 15.</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

12 Steps to managing chemicals: Hazard identification phase

SDS item	Description of what SDS must contain
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 - (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

12 Steps to managing chemicals: Hazard identification phase

SDS item	Description of what SDS must contain
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.

12 Steps to managing chemicals: Hazard identification phase

Obtain a current SDS



Contact the manufacturer, importer or supplier (excluding retailers*) to obtain an up to date SDS for those substances where an SDS is not available on site, or if the SDS that you have is more than five years old.

*retailers are exempt from having to supply SDSs

You could set up a purchasing system to make sure that:

- an up to date SDS is always available for all substances purchased; and
- new substances introduced into the workplace are added to the register – see Step 5.

A purchasing system should incorporate the following actions:

- if the product to be purchased is not listed in the register, ask the manufacturer or importer if it is classified as dangerous goods or a hazardous substance. If it is, request an SDS
- a product classified as dangerous goods or a hazardous substance should not be purchased if a current SDS is not available
- if the substance is not classified as dangerous goods or a hazardous substance, ask for confirmation in writing and request information on safe use.

It is a good idea to obtain an SDS before buying a substance so that you can do a preliminary risk assessment before using it.

By reviewing the SDS before purchase, you can check if:

- a safer product can be used for the job
- a safer form of the product is available eg pellets instead of powder, or a ready-to-use product instead of concentrate
- you have appropriate safety measures in place, or whether additional measures are required
- use of the product requires additional measures such as air monitoring, health surveillance, or a carcinogen licence or notification etc.

Review the SDS

When reviewing the SDS, you should check whether:

- it contains the information required by the regulations (refer to SDS requirements on page 5)
- information provided is acceptable eg written in plain English; clearly laid out; useful
- SDSs may also be produced in any other languages in addition to English as required.
- the SDS is less than five years old.

If the SDS does not comply with the regulations or the information is inadequate:

- notify the manufacturer, importer or supplier; or
- return the product to the manufacturer, importer or supplier; or
- obtain the product from a different manufacturer, importer or supplier.

12 Steps to managing chemicals: Hazard identification phase

Step 4: Check and ensure containers of chemicals and chemicals in systems/pipework are adequately labelled or identified

Labels and package markings are used to identify a product and provide relevant information to the end user so that the product can be used safely. Labels and package markings should provide information including:

- the word 'hazardous', the dangerous goods class 'diamond' and any other pictogram consistent with the classification of the substance, and/or the poisons or Agvet label
- the chemical identities of the ingredient(s) and their proportions
- the trade name of the substance
- possible harmful effects of the substance
- how to use the substance safely
- the name, address and contact telephone number of the Australian manufacturer or importer.



Ensure that containers of substances/goods supplied to the workplace are labelled properly

- Check labels when the product is received (this may be done by a purchasing officer or stores manager).
- Regularly check labels of containers in use and in storage to make sure they are intact and legible.
- Notify the manufacturer, importer or supplier if the container is not labelled properly; or if the label comes off, tears, or becomes illegible during storage or use. If you are not satisfied with the response, return the product to the supplier or obtain the product elsewhere.



Ensure that containers of decanted substances are labelled with at least the product name. (*Dangerous goods transferred to a portable container also need to be labelled with the class and subsidiary risk labels*)



- If a substance is to be left unattended it must be labelled with the product name.
- Provide employees with information and instruction on what needs to be included on the labels of decanted substances.
- Regularly inspect the workplace(s) where substances are used.
- Provide adequate daily supervision of staff who use substances.
- You may add additional information such as risk and safety phrases; type of hazard; or warnings such as "hazardous" to labels if desired.
- Labelling is not required if a decanted substance is used immediately and the container is cleaned immediately after use, or its contents have been made safe (eg neutralised, deactivated or cured) in some way.



Ensure contents of any unlabelled containers found are labelled appropriately or discarded

- If you find any unlabelled containers of chemicals, label them if you are sure of the contents.
- If you are not sure of the contents, attach a label such as "CAUTION DO NOT USE: UNKNOWN SUBSTANCE". Then either take steps to ascertain what the contents are or contact the local waste management authority to arrange for the substance's safe disposal.

12 Steps to managing chemicals: Hazard identification phase

 **Ensure that hazardous substances/ dangerous goods in “systems” (such as pipes, vessels, or other equipment that forms part of a manufacturing process) are identified**



- Determine a suitable form of identification such as colour coding or signage for systems containing hazardous substances/dangerous goods. Refer to relevant Australian Standards for guidance.
- Provide employees (including maintenance workers and contractors) who may be exposed to the substances with information and instruction on the method of identification so that they are aware of the contents of “systems”.

12 Steps to managing chemicals: Hazard identification phase

Step 5: Set up a hazardous substances/dangerous goods (or chemicals) register

A register is a list of all hazardous substances and/or dangerous goods supplied to the workplace and includes a copy of the SDS for each of those substances.



Check the SDS and label to determine if a substance is classified as dangerous goods or a hazardous substance

- The SDS for a hazardous substance should include the correct GHS pictogram.
- The SDS for dangerous goods should state the proper shipping name, UN number, class, subsidiary risk and packing group.
- The label for a hazardous substance should, include a pictogram consistent with the correct classification and include any relevant hazard and precautionary statements
- The label for dangerous goods should display the relevant class "diamond".



List the product names of all substances identified as hazardous and/or dangerous goods and keep the relevant SDSs with the list



You may list all products used at your workplace in a chemicals register. In this case, you need to indicate which products are classified as hazardous and/or dangerous goods.

The sample register format shown in Appendix 1 suggests recording additional information that could be useful. A register containing such additional information may be useful in managing the use of chemicals generally.



Keep the register up to date

- Add new substances to the list and remove those that are no longer being used and are not likely to be used again.
- Replace old SDSs.

The register can be maintained through:

- the purchasing procedure
- checking purchasing records
- regular or scheduled reviews to ensure that all substances being used are listed and that SDSs are up to date
- inspection of the workplace to check whether products used are on the register
- contacting the manufacturer or importer to check that the SDSs are current.

12 Steps to managing chemicals: Hazard identification phase

Step 6: Ensure SDSs are accessible to employees (and other relevant people)

Safety data sheets must be readily accessible so that employees and other relevant people (eg emergency services) can identify the substance, its hazards and what precautions need to be taken.



Keep SDSs near areas where substances are used

You can compile lists of the substances used at particular work areas and these can be used to check that all relevant SDSs are available. Make sure SDSs are replaced when updated SDSs are received.

Where microfiche or computerised databases are used, make sure that:

- the SDSs represent the manufacturer's or importer's SDS
- the SDSs are up to date
- information contained in the SDS is not altered
- you can print a copy of the SDS.



Tell employees where the SDSs are kept and, where necessary, how to access them

Where SDSs are on a computerised database, you may need to provide employees with instruction or training on how to access them. Instruction on the purpose of SDSs, what information to look at and how the SDSs should be interpreted should form part of any training program on chemicals.

Risk assessment phase

Step 7: Assess the risks associated with chemicals used and stored

In order to control risks associated with hazardous substances and dangerous goods used it may be useful to undertake a risk assessment. A formal risk assessment is unnecessary if knowledge and understanding about 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.

This guide focuses mostly on risks to health. For assistance with hazards and risks involving dangerous goods, such as fire, explosion, corrosion, spontaneous combustion etc., refer to the Dangerous Goods (Storage and Handling) Regulations 2012 and the Code of Practice for the Storage and Handling of Dangerous Goods. The Code also provides specific guidance for retail outlets or workplaces that store only minor quantities of dangerous goods.

Risks to health

People can be exposed to substances in different ways. Substances may come into contact with skin or eyes, or may be inhaled, swallowed or injected. The level of exposure depends on factors such as how a substance is handled, quantities used and the effectiveness of safety measures such as ventilation or personal protective equipment (PPE).

In terms of risk, small quantities of some substances can be harmless. In large amounts, however, especially if exposure takes place over a long period, the same substances can cause serious harm or kill you. Conversely, some substances in very small quantities can cause serious harm or death if they are not used and stored safely.

The results of the risk assessment will indicate the areas where safety measures are necessary.

Routes of exposure



Skin contact



Inhalation



Ingestion



Eye contact

12 Steps to managing chemicals: Risk assessment phase



Decide who will conduct the risk assessment(s)

Select a competent person(s) who:

- has appropriate skills, knowledge and experience; and
- has a practical understanding of work being undertaken at the workplace; and
- is familiar with the legal requirements.

Risk assessment is best conducted by a team comprising employees, health and safety representatives, supervisors and managers. These people should be involved even where a consultant is used. Involving them in the process allows them to contribute to, and understand, the outcome of the assessment and any actions to be taken.



Plan and prioritise the risk assessment(s)

The plan should include what needs to be done, by whom and when.

Process and generic type assessments that cover more than one substance at a time can also be undertaken. These will reduce the need to conduct separate assessments for every substance at every work site.

Process assessments involve assessing a particular process as a whole where there may be more than one substance involved. Generic assessments apply when the same substances are used in a similar way under similar circumstances at more than one work area or workplace.

NB: If you have hazardous substances and dangerous goods, you can combine the assessments and assess all risks to people and property at the same time.

Plan the assessments and consider breaking down the assessments into more manageable tasks. You can do this by:

- dividing up the workplace by area or process/task; or
- grouping similar substances used in similar ways, for example:
 - a range of similar solvents mixed or decanted in a particular process, or in a similar way
 - a range of adhesives (glues) applied to a particular surface in the same way
 - a range of dyes and colours in the same form (eg liquid) mixed and applied/used in the same way
 - a range of cleaning products used to clean a particular piece of equipment/ area in the same way eg sprayed on, wiped on, brushed on etc.
 - a range of products automatically pumped into an enclosed reactor vessel.

Whichever way you group assessments, you need to make sure all risks are taken into account. Using a worst case scenario approach may assist.

Prioritise assessments

In deciding which assessments to do first, think about where:

- complaints, accidents, incidents and illnesses have occurred
- more hazardous chemicals are used or stored
- safety measures are not in place or used
- there is likely to be a greater risk to health or property
- more people or areas are likely to be affected.

Areas where little or no assessment has taken place should also be considered a priority.

12 Steps to managing chemicals: Risk assessment phase



Carry out the risk assessment(s)

Before beginning the assessment process, you may want to:

- consider using the risk assessment proformas in Appendix 2 to help you to do the assessment
- choose a form or a combination that best suits your situation.

Factors that should be considered in a risk assessment relate to the substance itself, how it is used, and other factors as outlined below.

1) Information about the substance(s)

Refer to the SDS and label, and any relevant standards and codes, to obtain information about the substance.

You need to know such things as:

- how harmful/toxic or irritating the substance is
- the form of the substance being used (eg powder, pellets, liquid, gas)
- how concentrated the substance is (eg concentrate or dilute)
- the chemical properties of the substance (eg ability to: form vapours readily; cause burns; give off odours; catch fire; explode, spontaneously combust; cause corrosion, poisoning or oxidation; or react with water, other substances or plant).

2) How the substance is used

Consider:

- the different tasks/processes involving the substance(s) (eg decanted, mixed, blended, sprayed, brushed on, heated, placed on conveyor etc.). Look at preparation, application, clean up and storage risks
- the quantities used
- form of the substance people are exposed to (eg liquid, mist, vapour, dust etc.)
- possible routes of exposure (eg whether you: breath it in [inhalation]; swallow it [ingestion]; absorb it through the skin [absorption]; have contact with it through skin or eyes; or inject it [intentionally or unintentionally])
- who is, or may be, exposed to the substance
- how long, and how often, people are exposed
- which property/areas are likely to be affected by the effects of the substance
- safety measures already in place, including emergency and First Aid procedures, and whether they are used and effective
- the estimated level of exposure.

12 Steps to managing chemicals: Risk assessment phase



Carry out the risk assessment(s) (continued)

3) Other factors

Consider:

- any information relating to accidents, incidents, illnesses, or symptoms of exposure. (Hint: check the accident or injury register)
- whether the substance is stored correctly and safely ie away from other incompatible chemicals and ignition sources such as matches, open flames, pilot lights, electrical equipment, heat, static electricity and items/machinery causing sparks
- outside factors such as guided tours, power shut downs and maintenance
- the need for any testing such as atmospheric monitoring or health surveillance.

For further information and case studies refer to the *Compliance Code for Hazardous Substances* and the *Code of Practice for Storage and Handling of Dangerous Goods* produced by WorkSafe Victoria.



Record the result of the risk assessment

The result of the assessment may be recorded.

- You should record the:
 - name of the person doing the assessment
 - date of assessment
 - premises/area/process assessed
 - substances assessed
 - brief description of process/tasks involved (including quantities used, concentrations, frequency and duration of exposure)
 - safety measures in place
 - type of risks identified (eg health, fire, corrosion, spontaneous combustion etc.)
 - results of any monitoring/testing performed
 - the result of the assessment ie whether there are risks to health or property
 - reasons for your conclusion.
- If you are unsure whether a risk exists, record this and the information above. If unsure, further testing such as atmospheric monitoring or health monitoring may be required (refer to Step 9). You may also need to seek advice from a safety specialist in this situation.
- If you conclude that the use of a substance does not result in a risk to health or property, you also should record this. The level of detail recorded should reflect the complexity of the process being assessed. Generally, the more complex the process, the more detail that should be recorded.
- The pro formas in Appendix 2 can be used to record your assessment.
- Refer to the codes of practice for further guidance.

12 Steps to managing chemicals: Risk assessment phase



Review and revise the risk assessment as necessary and at least every five years

- Schedule regular reviews to make sure that the assessment is valid and still applies.

A change could result in a new risk being generated and trigger the need to introduce or modify a safety measure eg changing from pellets to powder would introduce risks of possible inhalation and dust explosion. Both of these situations would result in the need for new and/or modified safety measures.

- Establish the circumstances that would tell you when a review or revision is required. For example:
 - an accident, incident or near miss involving the substance(s)
 - symptoms reported which may be related to the substance(s) used
 - a change in the product used (including its form eg powder, pellet, liquid, gas)
 - the introduction of a new work process or changes to an existing process
 - an increase in the duration and frequency of potential exposure eg an increase in hours worked by employees using a substance(s)
 - an increase in the quantities or concentration used
 - a change to the location where the substance is used or stored
 - failure of safety measures in place
 - availability of new information about the health hazards linked to the substance
 - a change in the exposure standard as indicated on the SDS
- You can instruct relevant personnel, such as management, supervisors, health and safety representatives, and purchasing officers to feed back the above information. This will allow it to be incorporated into the assessment process. Sources of information such as incident or injury registers, maintenance records, production records and updated SDSs should also be used.
- Record the date of the review or revision of the assessment, including the outcome, any action required, by whom and when.

12 Steps to managing chemicals: Risk assessment phase

Step 8: Undertake atmospheric monitoring and/or health monitoring if required

Atmospheric monitoring means doing tests to measure the concentration of a substance in the air. It therefore estimates what substances employees may inhale. It may also be important if certain atmospheric limits need to be maintained (eg so that flammable vapours are detected before explosive concentrations are reached). In terms of health, you need to remember that air monitoring only looks at what may be breathed in. Substances can be also absorbed through the skin and eyes, and in some cases may be ingested or injected. In these cases, air testing does not tell you about an employee's total exposure.

Health monitoring (health checks) can be used to check for certain health effects and may include medical examinations and biological tests (eg blood, urine) that check for the presence or concentration of a substance or its breakdown products. Health monitoring takes into account all routes of exposure. Both techniques can be used to check the effectiveness of safety measures and to determine risks to health where there is uncertainty.



Blood tests



Eye checks

12 Steps to managing chemicals: Risk assessment phase



Determine if atmospheric monitoring is required

- Atmospheric monitoring under the OHS Regulations is required where there is an exposure standard for the hazardous substance or any required of its ingredients, and:
 - you are not sure whether the exposure standard may be exceeded; or
 - atmospheric monitoring is required to determine if there is a risk to health.
- Refer to the SDS to see if there is an exposure standard for the hazardous substance or any of its ingredients.
- Refer to the results of the risk assessment to determine if there is any uncertainty as to whether the exposure standard may be exceeded, or if atmospheric monitoring was considered necessary to assess the risk to health.
- Atmospheric monitoring may also need to be carried out for dangerous goods to ensure a safe atmosphere is maintained. Whether monitoring is required will depend on the hazards identified and the outcome of the risk assessment.
- Refer to SDSs to see if there are upper and lower flammable or explosive limits for the dangerous goods involved.
- Check the results of the risk assessment to determine if unsafe atmospheric concentrations (ie flammable or explosive) may be present or are likely to occur.



Conduct atmospheric monitoring if required

- Select a competent person to do the monitoring and interpret the results. A competent person would generally be someone with occupational hygiene or safety knowledge, or experience in monitoring.
- Record the results of atmospheric monitoring (refer to the Code of Practice for guidance on what needs to be recorded).
 - Provide results to relevant employees and include an explanation of the results.



Decide if health monitoring is required where required for substances used

Health monitoring is required where:

- a substance is listed in Schedule 9 of the OHS Regulations 2017; and
- exposure is such that there is a likelihood of an adverse health effect under the particular conditions of use.

Therefore you need to:

- check whether the hazardous substances or ingredients shown in the SDS are in Schedule 9; and
- determine if it is likely that employees' health will be affected by reviewing the results of the risk assessment and the type of safety measures in place.

The Code of Practice provides guidance on situations where health surveillance may be required. It also includes a list of substances requiring health monitoring.

12 Steps to managing chemicals: Risk assessment phase



Establish a health monitoring program where required

In situations where health monitoring is required:

- identify employees requiring health monitoring
- appoint a medical practitioner to supervise health monitoring
- consult the medical practitioner as to what sort of health monitoring is required and how often it needs to occur
- contact the medical practitioner to discuss what the report(s) will look like and when they will be received
- provide the medical practitioner with relevant information eg copies of risk assessment reports; job descriptions of relevant employees; incident reports; SDSs
- establish a schedule for the health monitoring
- provide information to employees on the purpose and type of health monitoring to be undertaken
- establish a secure filing system for confidential medical reports
- provide a copy of the health monitoring report to the employee concerned
- follow up any recommendations in the health monitoring report and ensure that safety measures are reviewed or revised where necessary
- provide a copy of the health monitoring report to WorkSafe Victoria where the medical practitioner recommends that measures be taken to ensure an employee is not exposed.

The frequency of health monitoring will depend on the results of the risk assessment and the type of safety measures relied upon. The frequency may be varied depending on the initial health monitoring results and any safety measures subsequently put into place.

NB: If safety measures implemented are highly effective in controlling risks to health and ensuring that there is no likelihood of health effects, health monitoring will not be required.

Risk control phase

Step 9: Eliminate or minimise any risks to people and property

Where there is a risk to people or property, you will need to put into place safety precautions to eliminate or reduce that risk so far as is practicable. Various measures can be implemented to eliminate or reduce risk. These are listed below in order of effectiveness according to a hierarchy of risk control (Table 1.1). The more effective measures appear higher up the list. Examples of some safety measures are listed in Appendix 4. Personal protective equipment should only be considered where a risk still exists after applying the other measures as far as is practicable. In practice, a combination of safety measures is usually required to control a risk.

With dangerous goods, reducing the amount stored or used will reduce the risks significantly. In addition to a general duty to control risk, there are also some specific safety precautions that must be addressed according to the Regulations. These are listed in Table 1.2 below.

Table 1.1 Hierarchy of risk control

1) Elimination

Where a task involves the use of a substance or process that is not essential, the substance or process should be eliminated, or the risk associated with the substance or process eliminated if practicable eg using steam cleaning rather than washing with a solvent; using clips, clamps, bolts or rivets instead of an adhesive.

2) Substitution

Substitution involves using a safer product or process. This includes exchanging the substance for one that is less harmful; using the same substance in a less hazardous form; or using the same substance in a less hazardous process.

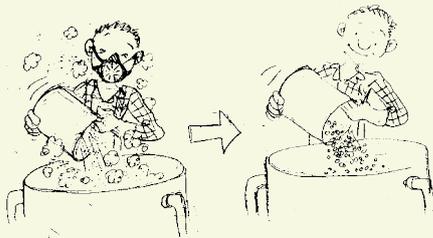


Figure 1: Using pellets instead of powders

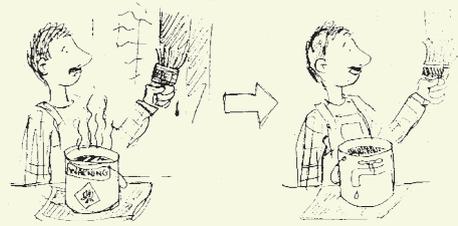


Figure 2: Using water-based paint instead of oil-based paint

Isolation

Where a task involves the use of a substance or process that is not essential, the substance or process should be eliminated, or the risk associated with the substance or process eliminated if practicable eg using steam cleaning rather than washing with a solvent; using clips, clamps, bolts or rivets instead of an adhesive.

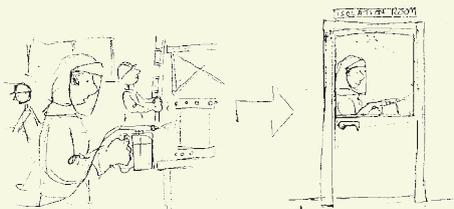


Figure 3: Using a spray booth to isolate a process

12 Steps to managing chemicals: Risk control phase

Table 1.1 Hierarchy of risk control

Engineering controls

Engineering controls involve the use of equipment or processes which:

- stop or reduce new or unwanted substances from being generated
- stop or contain substances so that they are not released into unwanted areas eg via ventilation
- reduce the area of contamination in the event of spills or leaks.



Figure 4: Installing a ventilation system to remove unwanted fumes

3) Administrative controls

Administrative controls are systems of work or safe work practices that prevent or reduce risks to health, property and the environment.

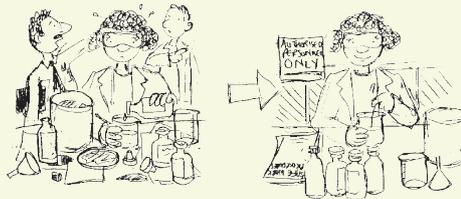


Figure 5: Keeping lids on containers, cleaning up spills and restricting unnecessary access reduces risks

4) Personal protective equipment (PPE)

PPE is protective clothing and equipment for employees, supervisors and visitors, and is the least effective safety measure. It should only be used where it is not practicable to use other measures, or when other measures do not adequately control exposure.



Figure 6: Different types of personal protective equipment

12 Steps to managing chemicals: Risk control phase

Table 1.2 Specific risk control duties associated with dangerous goods

If dangerous goods are stored or handled, there must be compliance with specific risk control duties attached to the following issues:

- design of new premises, plant, processes and systems of work
- risks to workers
- visitors to premises
- security at premises
- stability of goods
- isolation of goods
- interaction with other substances
- interaction with other plant and processes
- condition and repair of structures and plant
- containers for bulk dangerous goods
- clearing of decommissioned receptacles
- protection from impact
- spill containment
- transfer of dangerous goods
- ignition sources in hazardous areas
- ventilation and atmospheric emissions
- placarding if quantities exceed relevant threshold level, or if bulk containers or storage of dangerous goods are present
- maintenance and revision of manifest if quantities exceed relevant threshold level
- equipment for clean-up
- general fire protection
- fire protection for premises housing quantities that exceed relevant fire protection level
- planning for emergencies

Refer to the Dangerous Goods (Storage and Handling) Regulations 2012 and the associated Code of Practice for further details.

12 Steps to managing chemicals: Risk control phase



Determine appropriate safety measures

- The results of a risk assessment should indicate where risks exist and therefore the type and level of safety measures required. You will need to:
- refer to the SDS and label, and relevant Standards for recommended safety measures
- refer to the regulations that specify the order in which safety measures must be considered
- refer to the codes of practice and compliance codes and Appendix 4 for examples of the types of safety measures to consider
- contact relevant industry associations, unions or consultants if you need assistance
- refer to Appendix 5 for useful publications and additional sources of information.



Plan what, how and when safety measures will be implemented and by whom

- Priorities should take into account the: nature and severity of the risk; number of people/properties that may be affected; and practicability of implementing measures.
- Specify immediate, interim and long-term measures as appropriate.
- Indicate what safety measures are to be implemented.
- Record the date of completion and “sign off” by a person with authority.

The work sheet in Appendix 3 can be used to record a risk control plan.

Emergency plans and procedures must also be included when planning future safety measures in case of leaks, spills, or other uncontrolled releases of hazardous substances or dangerous goods.



Ensure safety measures are used and maintained

This can be achieved by:

- providing appropriate information, instruction, training and supervision of staff
- ensuring deficiencies or failure of safety measures are reported, recorded and rectified
- establishing a maintenance procedure.

The maintenance procedure should specify:

- *the type of maintenance* eg visual checks, testing, and preventative maintenance according to any manufacturer's specifications or the relevant Australian Standard
- *the frequency of maintenance* eg start of each shift; periodically; according to any manufacturer's specifications or relevant Australian Standard; and
- *the records or reports to be kept* including any remedial action required; when it should be completed and by whom; and a means of signing off on completion.

12 Steps to managing chemicals: Risk control phase

Step 10: Provide information, instruction and training

Employees need to know how to use and store substances safely. The regulations require employers to provide information, instruction and training to employees on the hazards and risks associated with hazardous substances and dangerous goods that they use or may be exposed to. Where dangerous goods are stored or handled, other persons on site such as contractors, maintenance workers, administrative staff and visitors may also need to be given information, instruction and training on associated risks and precautions to be taken.



Identify who needs to be provided with information, instruction and training

- Identify employees and others who use chemicals, or who may be exposed to chemicals at the workplace.
- Checking employees' job descriptions, risk assessment reports and risk control plans should help you to identify these people.



Decide what information, instruction and training is to be provided, when, and how it is to be done

Training for employees should generally cover:

- how to read chemical labels and SDSs
- how chemicals can contact and enter the body
- the possible health effects of chemicals used
- the results of risk assessments
- what safety measures are in place, why they are there, and how to use them properly eg ventilation, correct wearing and use of PPE
- emergency and First Aid procedures
- what to do if a leak, spill or uncontrolled release of a substance occurs.
- The type and level of information, instruction and training will depend on the risks present; work being carried out; and the skills, knowledge, experience and literacy of the people to be trained. Refer to the codes of practice for further guidance.



Decide who will prepare and provide information, instruction and training

- Training may be conducted internally, contracted out, or a combination of both.
- Nominate the person or team to develop and provide information, instruction and training.



Provide information, instruction and training, and keep relevant records

A record of attendees, the dates of training and course content could be used to check who has been trained and to demonstrate compliance with the regulations.



Review any information, instruction and training provided to see how effective and useful it is

- This can be done through on-the-job observation or through a formal written or verbal assessment. Reviews will help to determine if any new information or refresher training is required.
- Review and, where necessary, revise the training periodically to ensure that it is still relevant to the substances used and the way they are used. The code of practice and compliance code provide guidance on when training should be reviewed.

12 Steps to managing chemicals: Risk control phase

Step 11: Identify and undertake specific duties if scheduled carcinogens and threshold quantities of dangerous goods are stored or used

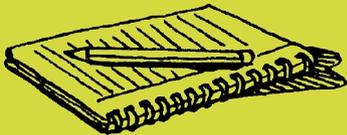
 Determine whether scheduled carcinogenic substances are used	<ul style="list-style-type: none">▪ Workplaces other than laboratories are prohibited from using Schedule 10 carcinogens.▪ A licence must be obtained from WorkSafe Victoria for:<ul style="list-style-type: none">— use of Schedule 10 carcinogens in a laboratory— use of Schedule 11 carcinogens in a workplace other than a laboratory.▪ Check the SDS to determine if the substance or any of its ingredients are scheduled carcinogens.
 Determine if threshold quantities of dangerous goods are located on site 	<ul style="list-style-type: none">▪ The Dangerous Goods (Storage and Handling) Regulations 2012 require extra duties to be undertaken in relation to notification, placarding, manifest and fire protection where threshold, or above, quantities of dangerous goods are located.▪ The threshold quantities are found in Schedule 2 of the Regulations. You need to check the quantities of dangerous goods and other chemicals that may react with them on your site and on neighbouring sites. You then need to check Schedule 2 and determine if the threshold quantities of individual classes and/or mixed classes of dangerous goods on your site are reached. If the threshold levels are reached, the extra duties will need to be undertaken.▪ Refer to the Regulations and the Code of Practice for the Storage and Handling of Dangerous Goods for further guidance in relation to notification, placarding and manifest, and fire protection requirements.
 Submit a notification or licence application to WorkSafe Victoria if required	<p>Obtain licence application and notification forms from WorkSafe Victoria.</p> <p>For Scheduled Carcinogens, the information to be included in a licence application is detailed in Part 4.2 of the OHS Regulations. Notification requirements for hazardous substances can be found at Part 4.1 of the OHS Regulations.</p> <p>For dangerous goods, the information to be included in a notification form is detailed in Part 5 of the <i>Dangerous Goods (Storage and Handling) Regulations 2012</i>.</p>
 Ensure compliance with the terms and conditions of any licence or notification	<p>This can be achieved through close supervision and by providing relevant employees with information, instruction and training so that they:</p> <ul style="list-style-type: none">▪ understand the risks to health and/or property▪ know what safety measures are in place, why they are required, and how they are to be used▪ are familiar with any terms and conditions imposed by WorkSafe Victoria.

12 Steps to managing chemicals: Risk control phase

Step 12: Document and check the way you do things



Record how chemicals are managed in your workplace



This should include resources, policies and procedures, work instructions, records and any checklists used.

Such documentation ensures that there is a systematic and consistent way of managing the use of chemicals even if there are changes in personnel. It also forms the basis for training employees and for continuous improvement.



Conduct regular inspections or checks to ensure that policies, procedures, work instructions etc. are followed and remain effective

- Schedule and conduct inspections/checks or monitor through daily observations and supervision.
- The frequency of the inspections should reflect:
 - the size and complexity of the business / workplace
 - the number and types of policies and procedures required to be audited; and
 - the nature of the potential risk associated with the chemicals used or stored.
- To ensure continuous improvement, monitor any deficiencies detected, action needed, persons responsible and timeframes for the completion of any actions.



Record the results of the inspections / checks and provide feedback to relevant people

- Identify strengths and weaknesses and highlight these.
- Note any actions to be taken, by whom and when.
- Communicate results of inspections to employees and managers.
- For further guidance, refer to the WorkSafe Victoria publication *Getting Started with Workplace Health and Safety: An introduction to Workplace Health and Safety Policies, Procedures and Evaluation*.

Risk Assessment Report

Appendix 2(c)

For assessments involving hazardous substances and dangerous goods

Date:	Job, task or process:
Company/workplace:	Area/location:
Assessed by:	<i>(Position)</i>
	<i>(Health and Safety Representative)</i>
	<i>(Other:)</i>

Process/job: *(Include how the job is done; whom or what may be exposed to substances; how often and how long they may be exposed etc.)* *;

Tasks (steps) involved eg preparation, mixing, spraying, applying, clean up, storage (describe briefly):

1.

2.

3.

4.

5.

Have any accidents, incidents, near misses or symptoms occurred?

Yes / No?

If YES, provide details *(substances involved, tasks, action taken etc.)*

*For further guidance, refer to the case studies in the Compliance Code for Hazardous Substances or Code of Practice for Storage and Handling of Dangerous Goods.

Appendix 2(c)

Process/job:

Review of product(s)/substance(s) used during process/job [refer to SDS] work areas/site:

Product	Form	Possible health effects	DG class and sub risks	UN no.	Relevant properties*
1.	<input type="checkbox"/> Solid	Inhalation:			
Approximate quantity used:	<input type="checkbox"/> Liquid	Skin:			
	<input type="checkbox"/> Gas	Eye:			
Is it used as supplied or diluted?	<input type="checkbox"/> Other	Ingestion:			
		Injection:			
2.	<input type="checkbox"/> Solid	Inhalation:			
Approximate quantity used:	<input type="checkbox"/> Liquid	Skin:			
	<input type="checkbox"/> Gas	Eye:			
Is it used as supplied or diluted?	<input type="checkbox"/> Other	Ingestion:			
		Injection:			
3.	<input type="checkbox"/> Solid	Inhalation:			
Approximate quantity used:	<input type="checkbox"/> Liquid	Skin:			
	<input type="checkbox"/> Gas	Eye:			
Is it used as supplied or diluted?	<input type="checkbox"/> Other	Ingestion:			
		Injection:			
4.	<input type="checkbox"/> Solid	Inhalation:			
Approximate quantity used:	<input type="checkbox"/> Liquid	Skin:			
	<input type="checkbox"/> Gas	Eye:			
Is it used as supplied or diluted?	<input type="checkbox"/> Other	Ingestion:			
		Injection:			

Appendix 2(c)

Product	Form	Possible health effects	DG class and sub risks	UN no.	Relevant properties*
5	<input type="checkbox"/> Solid	Inhalation:			
Approximate quantity used:	<input type="checkbox"/> Liquid	Skin:			
	<input type="checkbox"/> Gas	Eye:			
Is it used as supplied or diluted?	<input type="checkbox"/> Other	Ingestion:			
		Injection:			

*Relevant properties are properties that may result in risk eg volatility (ie evaporates readily); pH (corrosive, acid, caustic); odour. If assessing dangerous goods requirements at the same time, record all chemical properties associated with the substance and assess risks associated with these properties.

Appendix 2(c)

Process/job:

Task being assessed (eg storage, preparation, mixing, spraying etc.):

*NB:**Use a separate page for each task involved in the process/job***

Hazardous substance(s)	Exposure routes	Existing safety measures	Is there a risk to health [Yes/No/Not sure]	
			Result	Reasons (see below)
	<input type="checkbox"/> Inhalation <input type="checkbox"/> Skin <input type="checkbox"/> Eye <input type="checkbox"/> Ingestion <input type="checkbox"/> Injection			

Further action required (where result of risk assessment is 'yes' or 'not sure'):

NOTES: Copy and attach more pages if necessary

1. More than one product can be assessed as long as all risks are taken into account. Refer to the *Compliance Code for Hazardous Substances* and the *Code of Practice for Storage and Handling of Dangerous Goods* for further guidance.
2. Exposure routes depend on form and properties of the product and how it is used.
3. The reasons given for the result of the risk assessment could include:
 - existing safety measures and their effectiveness. Reference can be made to other documents that specify what safety measures are in place
 - quantity, concentration, frequency and duration of use
 - observations/results of any tests (air monitoring or health surveillance)
 - nature of work and form, and properties of the product or its ingredients
 - incidents, symptoms reported etc.

If 'yes', there is a risk. Refer to the risk control measures worksheet.

If assessing dangerous goods requirements at the same time, complete the following sheet(s) listing the goods that are being assessed; the type of risk assessed (eg fire, corrosion, oxidation, spontaneous combustibility, water reactivity etc.); the safety measures in place and their effectiveness; and whether there is a risk to health and/or property.

Appendix 2(c)

Process/job:

Task being assessed (eg storage, preparation, mixing, spraying etc.):

*NB:**Use a separate page for each task involved in the process/job***

Dangerous Goods	Type of hazard	Existing safety measures	Is there a risk to people or property? [Yes/No/Not sure]	
			Result	Reasons (see below)
	<input type="checkbox"/> Fire <input type="checkbox"/> Explosion <input type="checkbox"/> Corrosion <input type="checkbox"/> Spontaneous combustion <input type="checkbox"/> Other (state)			

Further action required (where result of risk assessment is 'yes' or 'not sure'):

The reasons given for the result of the risk assessment could include:

- existing safety measures and their effectiveness. Reference can be made to other documents that specify what safety measures are in place
- quantity, concentration, frequency and duration of use/storage
- observations/results of any tests
- nature of work and form, and product properties
- or ingredients incidents, symptoms reported etc.

If 'yes', there is a risk. Refer to the risk control measures worksheet.

Appendix 3

Risk Control (Safety) Measures Worksheet

Company/workplace:

Date:

Plant/area/location:

Substance(s) or job/process/task:

Substance or job/process/task(s)	List safety measures to be put in place <i>(Refer to codes of practice or Appendix 4 for examples)</i>	Due date	Person(s) responsible
	Elimination		
	Substitution:		
	Isolation:		
	Engineering:		
	Administration:		
	Personal protective equipment (PPE):		

NOTES:

1. This form can be used to record safety measures to reduce risk with individual substances; or for safety measures to reduce risk associated with an entire job, process or task, or a number of tasks. You can attach this sheet to the risk assessment form.
2. Refer to the risk assessment worksheet/record to assess which substances/jobs/processes/tasks require measures to be implemented.
3. Indicate whether safety measures to be put in place are immediate (IM), short term/interim (INT) or long-term (LT) controls.

Appendix 4

Examples of safety measures

Safety measure (in order of hierarchy)	Explanation and examples
Elimination	<p>Eliminate the use of the substance by:</p> <ul style="list-style-type: none">▪ using a physical process instead of a chemical process eg using ultrasound to clean equipment instead of a process involving chemicals; using clips/bolts or nails instead of adhesive.
Substitution	<p>Use a safer substance or a safer form of the substance. Examples:</p> <p>Safer substance</p> <ul style="list-style-type: none">▪ use detergent instead of chlorinated solvent for cleaning▪ use water-based chemicals instead of solvent-based chemicals where compatible <p>Safer form or process</p> <ul style="list-style-type: none">▪ paint with a brush instead of spraying▪ purchase a substance in a safer form (eg use less concentrated liquids ie in ready-to-use form instead of concentrates that require decanting or mixing; use pellets instead of powder that reduces the amount of dust formed)
Isolation	<p>Separate people or property from the substance by distance or barriers. Examples:</p> <ul style="list-style-type: none">▪ use closed systems▪ isolate the process to one room with restricted access▪ or use appropriate barriers/screens to separate substances▪ move the process into a positive/negative pressure cabin/room▪ distance workers from substances/processes through the use of remote controls▪ distance property, incompatible chemicals and ignition sources (eg flames, sparks) from goods

Appendix 4

Engineering	<p>Use physical controls (such as plant/equipment) that eliminate or reduce the generation of substances; suppress or contain substances; or limit the area of contamination in the event of spills and leaks. Examples:</p> <ul style="list-style-type: none">▪ use fully or partially enclosed ventilation booths▪ fully or partially enclose the process with exhaust extraction▪ use local exhaust or natural ventilation systems (eg air ducts, open doors/windows)▪ use robots▪ design buildings that are: compatible with the intended goods; made of non-combustible construction as far as is practicable; designed to reduce contamination▪ use bunding to contain spillage▪ install drains, tanks or sumps to cope with spilled material▪ install automatic fire protection and chemical suppression systems
Administration	<p>Use safe work practices including good housekeeping.</p> <p>Examples:</p> <ul style="list-style-type: none">▪ reduce the amount of property or the number of employees exposed▪ reduce the duration and/or frequency of exposure eg through job rotation▪ reduce the amount of goods/products stored and used▪ ensure safe interim storage of wastes/products (eg labelled properly in suitable containers stored away from people, the environment, incompatible chemicals, ignition sources etc.)▪ vacuum or wet sweep to suppress dust being generated▪ cover containers and make sure lids are attached▪ clean up spills immediately (includes provision of suitable aids and equipment)▪ ensure there is no eating, drinking or smoking in areas where substances are used▪ provide suitable washing facilities▪ provide First Aid facilities▪ instruct employees on how to use substances/equipment safely
Personal protective equipment (PPE)	<p>Provide protective clothing and equipment for employees, equipment (PPE) supervisors and visitors. NB: items must be compatible with chemical(s) being used/stored. Examples of PPE:</p> <ul style="list-style-type: none">▪ overalls, aprons, gowns, chemical resistant suits▪ footwear (enclosed shoes, safety boots)▪ gloves▪ chemical resistant glasses (safety glasses)▪ face shields/masks, respirators – full/partial▪ head protection

Appendix 5

Further information

Information sources

WorkSafe Victoria

Tel (03) 9641 1555

Fax (03) 9641 1399

Toll-free 1800 136 089

Website

www.worksafe.vic.gov.au

E-mail

info@worksafe.vic.gov.au

Inquiries

WorkSafe Advisory Service

Tel (03) 9641 1444

Fax (03) 9641 1353

Toll-free 1800 136 089

Acts and regulations

Victorian Legislation and Parliamentary Documents

<http://www.legislation.vic.gov.au/>

Relevant Safe Work Australia publications:

Labelling

Model Code of Practice: Labelling of Workplace Hazardous Chemicals

SDS

Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals

See Safe Work Australia website for other guidance material.

Australian Standards

Standards Australia publications

<http://www.standards.org.au/>

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Tel 03 9867 0111

Chemistry Australia

<http://chemistryaustralia.org.au/>

Level 11

10 Queen St

Melbourne VICTORIA 3000

(03) 9611 5400

Victorian Employers' Chamber of Commerce and Industry (VECCI)

<http://www.victorianchamber.com.au/>

Level 3

150 Collins Street

Melbourne VIC 3000

Tel 03 8662 5333

Appendix 5

Other industry associations

You may be a member of another industry association. Contact them for information about hazardous substances management in your industry.

Victorian Trades Hall Council (VTHC)

www.vthc.org.au
54 Victoria Street
Carlton South 3053
Tel 03 96623511

Your union

You may be a member of a union. Contact them for information about hazardous substances management in your industry.

Contacts for specialist consultants

Australian and New Zealand Society of Occupational Medicine (ANZSOM)

www.anzsom.org.au
Suite 8, 150 Chestnut St
Cremorne VIC 3121
1300 666 515

Australian Institute of Occupational Hygienists (AIOH)

www.aioh.org.au
Unit 2, 8–12 Butler Way / PO Box 1205
Tullamarine Victoria 3043
Australia
+61 3 9338 1635

Advice on disposal of hazardous wastes and management of spills

Environment Protection Authority (EPA)

<http://www.epa.vic.gov.au>
200 Victoria Street,
Carlton, 3053
1300 372 842

On-line information sources

Australia

- SafeWork Australia www.safeworkaustralia.gov.au
- Queensland Workplace Health and Safety Regulator <https://www.worksafe.qld.gov.au/>
- Standards Australia – www.standards.com.au
- WorkCover, NSW – www.workcover.nsw.gov.au
- Safe Work SA – www.safework.sa.gov.au
- WorkSafe Western Australia – <http://www.commerce.wa.gov.au/worksafe/>
- University of Western Australia – www.general.uwa.edu.au/u/soilweb/safety.html

Overseas

- Cambridge University access to chemical journals - www.ch.cam.ac.uk/ChemJournals.html
- Canadian Centre of OSH – www.ccohs.ca
- Health and Safety Executive, UK – www.hse.gov.uk
- National Institute of OSH, USA – www.cdc.gov/niosh/homepage.html
- US Occupational Safety and Health Administration – www.osha.gov

WorkSafe Victoria

WorkSafe Agents

Agent contact details are all available at
[worksafe.vic.gov.au/agents](https://www.worksafe.vic.gov.au/agents)

Advisory Service

Phone.....(03) 9641 1444

Toll-free.....1800 136 089

Email.....info@worksafe.vic.gov.au

Website.....[worksafe.vic.gov.au](https://www.worksafe.vic.gov.au)

For information about WorkSafe in
your own language, call our Talking your
Language service

廣東話.....	1300 559 141
Ελληνικά.....	1300 650 535
Македонски.....	1300 661 494
Italiano.....	1300 660 210
普通话.....	1300 662 373
Српски.....	1300 722 595
Español.....	1300 724 101
Türkçe.....	1300 725 445
Việt Ngữ.....	1300 781 868
العربية.....	1300 554 987
English.....	1300 782 442
Other.....	1300 782 343