

November 2017

Hazardous substance risk management

KEY FACTS

You must proactively manage the risks that come from having hazardous substances in your workplace.

Consider whether you need hazardous substances in your workplace. If you can, eliminate hazardous substances from your workplace. If not, then consider whether you can substitute any that remain for less hazardous ones.

If a hazardous substance has to be in your workplace, put in place the specific controls for that substance from the Health and Safety at Work (Hazardous Substances) Regulations 2017 and the substance approval.

Then assess your workplace to check if any risk still remains.

If any risk remains, manage it using the hierarchy of controls:

- If it is not reasonably practicable to eliminate the hazardous substance that causes the risk or to substitute it for one that is less hazardous:
 - first, minimise the risk by isolating the substance or implementing engineering controls
 - if risk remains, minimise it by implementing administrative controls
 - if risk still remains, minimise it by using personal protective equipment (PPE).

This guide provides more information about how to manage risks, and examples of the different types of controls.

Risks to health and safety arise from people being exposed to hazards (anything that can cause harm). As the PCBU (person conducting a business or undertaking) you must eliminate risks to health and safety so far as is reasonably practicable. If you can't eliminate a risk, you must minimise it so far as is reasonably practicable.

SO FAR AS IS REASONABLY PRACTICABLE

So far as is reasonably practicable means something can reasonably be done after weighing up and considering:

- how likely it is that a hazard or risk will cause harm
- how severe that harm could be
- what a person knows, or reasonably should know, about the risk and how to eliminate or minimise it
- the measures in place to eliminate or minimise the risk (control measures)
- how available and suitable the control measures are.

These risks include risks to health and safety associated with using, handling, manufacturing, or storing hazardous substances at your workplace.

Seek the views of your workers and their representatives as you identify your work risks and work out how to deal with them. Workers and their representatives can provide technical and operational knowledge on identifying, assessing and eliminating or minimising risks. To get objective, detailed and comprehensive feedback, involve workers with a range of knowledge and experience.

'YOU' - THE PCBU

This guide is written for persons conducting a business or undertaking (PCBUs) as they have a duty to manage risk in the workplace. In this guide, 'you' means the PCBU.

In simple terms, a PCBU is an individual or a company carrying on a business, but it can also be other types of organisation. More information on PCBUs and other duty holders in the workplace and their duties is available on our website: www.worksafe.govt.nz

Approach to managing risk

As a PCBU, you have duties under the Health and Safety at Work Act 2015 (HSWA) and the regulations under it.

You may have duties under other regulations, but this guide deals with your duties under the following two regulations:

- the Health and Safety at Work (Hazardous Substances) Regulations 2017 (the Hazardous Substances Regulations), which specify **technical requirements** to manage the risk of working with hazardous substances.
- the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, which set out a **process for managing risks**, including the risks that arise from hazardous substances.

To comply with your duties, you should:

First, consider whether you need a hazardous substance in your workplace or whether you can eliminate its use completely. If you can't, consider whether you can substitute it for a less hazardous one.

Then, put in place the technical requirements and specific controls for the substances from the Health and Safety at Work (Hazardous Substances) Regulations 2017 and the substance approval.

- The key controls from the Regulations are included in the *Hazardous Substances Calculator* at: www.hazardoussubstances.govt.nz

- You can find the controls from substance approvals using the Environmental Protection Authority's *Approved Hazardous Substances with Controls* database at: www.epa.govt.nz

Then, use the **PLAN-DO-CHECK-ACT** approach to:

- **ASSESS** your workplace and **IDENTIFY** if any risks remain that you need to manage
- determine the most effective control measures to **MINIMISE** the risk using the hierarchy of controls
- **MONITOR** the performance of the control measures
- **MAINTAIN** and **REVIEW** the control measures. See 'Maintaining and reviewing control measures' at the end of this guide for when you **MUST** review control measures.



FIGURE 1:
The PLAN-DO-CHECK-ACT approach

Assessing your workplace and identifying the risk you still need to manage

Identify hazards that could give rise to reasonably foreseeable health and safety risks.

Think about workers and others in contact with hazardous substances and where they use these substances. Observe your workers and discuss their work with them. Think about other people (eg cleaners) who may have contact with contaminated surfaces.

Don't forget contractors, visitors and other workers who do not directly use or handle hazardous substances but who may be exposed to them. They could breathe in hazardous substances that are in the air or absorb them through their skin.

When you are assessing the risks of hazardous substances at your workplace, consider:

- the quantity of the hazardous substances that you use, handle, manufacture or store
- any associated health and physicochemical risks, in other words:
 - any chemical and physical reactions between substances
 - risks arising from the state (solid, liquid or gas) of substances
- ignition sources (eg flames, heat or sparks)
- the equipment used when using, handling, manufacturing or storing the substances
- the work that workers will do with the hazardous substances and:
 - their risk of exposure to hazardous substances
 - the likely degree of this exposure
- any prescribed exposure standards, restricted entry interval or accepted guidelines for the substances.

Once you have identified which risks you need to manage, identify the most effective control measures for your circumstances.

Implementing control measures

You must implement control measures according to the hierarchy of controls:

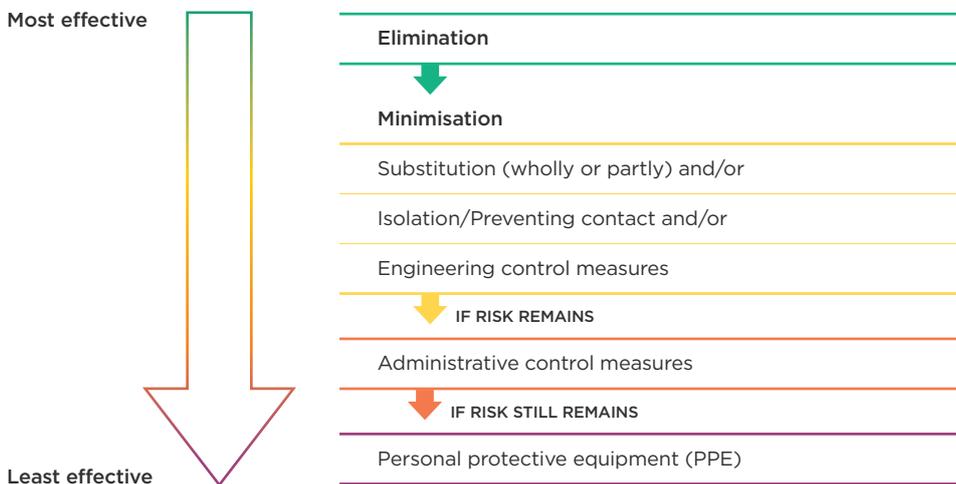


FIGURE 2:
Hierarchy
of controls

APPLYING THE HIERARCHY OF CONTROLS

The first step is to try to **eliminate** the risk. If eliminating the risk is not reasonably practicable, the risk must be minimised so far as is reasonably practicable.

When using the hierarchy of controls to **minimise** risk, the first step is to take one or more of the following actions, considering how appropriate and effective they are for the nature of the risk:

- **substituting** the hazard with a lower risk activity or substance
- **isolating** the hazard/preventing people from coming into contact with it
- applying **engineering control** measures.

If a risk remains after applying control measures from this first group, minimise it so far as reasonably practicable by putting in place **administrative control** measures.

Finally, if a risk still remains, you must minimise the remaining risk by ensuring the provision and use of suitable **PPE**.

Check if there are widely used control measures (eg industry standards) for the risk. However, just because something is a common practice doesn't mean that it's the most reasonably practicable option. You should focus on the most effective control measures.

PERSONAL PROTECTIVE EQUIPMENT

PPE is only used when other control measures alone can't adequately manage the risk. PPE should not be the first or only control measure considered and you are expected to give preference to other control measures that protect multiple at-risk workers at once.

PPE must be right for the substance and work, fit properly and be maintained regularly. Whether you provide it, or workers freely choose to provide their own, you must make sure that PPE:

- is suitable for the hazardous substance workers are dealing with
- is suitable for the hazardous substances in the air at your workplace.

Workers who have been providing their own PPE can choose for you to provide it after giving you a reasonable period of notice.

You must not charge workers or make deductions from their wages for providing PPE.

The information on the label or safety data sheet (SDS) for the hazardous substances will tell you which PPE is suitable for the substances.

When choosing PPE, ask a health and safety specialist or supplier for advice. Explain what it will be used for. Choose products meeting New Zealand and/or Australian Standards.

You must ensure PPE is kept clean, in working order, properly maintained, and repaired or replaced if damaged. You must make sure workers use the PPE, and also train and instruct workers about using, maintaining, cleaning and storing their PPE.

Workers must:

- wear PPE according to the information, instruction and training they receive
- not intentionally damage or misuse the PPE
- inform you if PPE is damaged, defective or needs cleaning or decontamination.

Make sure your workers use PPE correctly. Discuss it with them and watch them as they work and what they do with their PPE once they finish their work.

The following table describes the different types of control measures.

ACTION	WHAT IS THIS?	EXAMPLE
Eliminating	Removing the sources of harm (eg equipment, substances or work processes). Remember, elimination can occur before a substance reaches your workplace.	Disposing of leftover cleaning products for machinery that is no longer in the workplace.

ACTION	WHAT IS THIS?	EXAMPLE	
Minimising	Substituting	Substituting (wholly or partly) the hazard giving rise to the risk with something that gives rise to a lesser risk (eg using a less hazardous thing, substance or work practice). Remember, substitution can occur before a substance reaches your workplace.	Using non-toxic glue instead of toxic glue. Using water-based paint instead of solvent-based paint.
	Isolating/ preventing contact	Isolating the hazard giving rise to the risk to prevent any person coming into contact with it (eg by separating people from the hazard/preventing people being exposed to it). Isolation focuses on boxing in the hazard or boxing in people to keep them away from the hazard.	Automating processes (eg to remove objects from degreasing baths). Carrying out processes inside closed places (eg spray painting in a fully automated booth). Isolating workers (eg apply insecticides from an enclosed cab).
	Using engineering control measures	Using physical control measures including mechanical devices or processes.	Using local exhaust ventilation to capture contaminants at or very near the source and vent them out.
	Using administrative control measures	Using safe methods of work, processes or procedures designed to minimise risk. Administrative controls do not include engineering control measures, or the wearing or use of personal protective equipment.	Rotating work to restrict each worker's exposure. Keeping non-essential personnel away from areas where substances are used. Timing the use of substances to reduce exposure to people outside the workplace. Prohibiting eating and drinking around the substances.
	Using personal protective equipment (PPE)	Using safety equipment to protect against harm. PPE acts by reducing exposure to, or contact with, the hazard.	Safety glasses, goggles, face-shields or visors to protect the eyes. Half or full-face respirators, air-fed helmets or breathing apparatus. Overalls to protect the body from hazardous substances. Gloves made out of a suitable material to protect the hands and arms. Suitable footwear (ie safety boots or closed-toe shoes) to protect feet and legs. PPE is the least effective type of control and should not be the first or only control measure considered.

TABLE 1: Control measures for hazardous substances

Monitoring the performance of control measures

You must ensure, so far as is reasonably practicable, the health and safety of your workers. This includes monitoring any conditions at the workplace that could put a worker's health at risk.

You may also be required to monitor worker health or exposure in circumstances specified in health and safety regulations.

Monitoring can show if the control measures you have in place are working effectively.

HEALTH MONITORING

Health monitoring involves testing a person to identify any changes in their health status because of exposure to certain health hazards arising from their work, such as noise or contaminants in the air like hazardous dusts, fumes or vapours. It is a way to check if a worker's health is being harmed by the work they do, and aims to detect early signs of ill-health or disease.

EXPOSURE MONITORING

Exposure monitoring involves measuring and evaluating workers' exposure to a health hazard as they work. It includes monitoring the conditions at the workplace, as well as biological monitoring of people at the workplace (eg testing blood, urine or other body fluids to detect the presence of a harmful substance or its by-products).

An example of exposure monitoring is testing levels of cholinesterase (an enzyme in the nervous system) in the blood before and after pesticide work. If the levels in their blood drop, workers must stop working with the pesticides until they return to normal.

Workers may not want to undergo a blood test or provide a biological sample for a number of reasons, and they have a right to refuse one. If workers have an issue with blood or other biological testing they should discuss this with you or a health and safety representative to see what other solutions are available.

You can also find more information on health and exposure monitoring on our website.

Maintaining and reviewing control measures

Control measures must remain effective to continue managing risk. Review them on a regular basis (at least once every five years) and:

- if the SDS for a hazardous substance at the workplace changes significantly
- if the information about a hazardous substance in your inventory changes significantly (eg the location of the hazardous substance, the type of storage or the maximum quantity likely to be at the workplace)
- after a notifiable event involving a hazardous substance at your workplace
- if control measures are not controlling the risk (eg an incident occurs)
- before a change at the workplace occurs that is likely to create a new or different risk that existing control measures may not control (eg a new substance is used)
- if a new hazard or risk is identified
- if a PCBU receives a health monitoring report about a worker that contains:
 - test results indicating that the worker has been exposed to a substance hazardous to health at a potentially harmful concentration
 - advice that test results indicate the worker may have contracted a disease or illness or suffered an injury due to working with a hazard that has health monitoring requirements
 - a recommendation for the PCBU to take remedial measures
- if the results of exposure monitoring results show that the concentration of a hazardous substance exceeds any prescribed exposure standard for a substance
- if workers or their representatives request a review.

Further information

For more information on managing risk, see Part 2 of our guide on General Risk and Workplace Management, available on WorkSafe's website (look under HSWA guidance).

For more information about managing the risks of hazardous substances, see *Your Practical Guide* to working safely with hazardous substances, available at: www.hazardoussubstances.govt.nz

Abbreviations

TERM	DEFINITION
HSWA	Health and Safety at Work Act 2015
PCBU	Person conducting a business or undertaking
PPE	Personal protective equipment
SDS	Safety data sheet