

Conducting a risk assessment for airborne contaminants

As a person conducting a business or undertaking (PCBU) you must eliminate or minimise risks from airborne contaminants in the workplace so far as is reasonably practicable. You must also ensure that workers or others at the workplace are not exposed to levels of airborne contaminants above their workplace exposure limit.

Work processes can release dusts, gases, fumes, vapours, or mists into the air. These are known as airborne contaminants, and they may pose a risk to health and safety. To manage risks from airborne contaminants, you should follow the risk management process:

1. Identify hazards
2. Assess risks
3. Control risks
4. Review control measures

When working through the risk management process, you must also consult with your workers. By drawing on the knowledge and experience of your workers, you can make more informed decisions about how to carry out the work safely.

1. Identify hazards

To protect workers from being harmed by hazardous chemicals, you must first identify if there are any hazards. Airborne contaminants can be a significant hazard in your workplace and can be identified by:

- looking at your workplace, products and processes
- talking and consulting with your workers
- reading any labels and safety data sheets
- talking with your WHS regulator
- engaging a professional such as an occupational hygienist.

2. Assess risks

Once you have identified an airborne contaminant, you need to undertake a risk assessment to consider what could happen if your workers are exposed to the hazardous substance and the likelihood of it happening. A risk assessment will help you:

- identify which workers are at risk of exposure
- determine what sources and processes are causing the risk
- identify if and what kind of control measures should be implemented, and
- check the effectiveness of existing control measures.

3. Control risks

You should always aim to eliminate risks, as this is the best way to manage risks. Where this is not possible, you must minimise risks so far as is reasonably practicable. Use the [hierarchy of control measures](#) to control risks and reduce exposure to hazards. The ways of controlling risk are ranked from the highest level of protection and reliability to the lowest. Administrative controls and [personal protective equipment](#) (PPE) are the least effective. They do not control the hazard at the source and rely on human behaviour and supervision.

Elimination

The most effective way to manage a risk is to completely remove the hazard from your workplace. This means eliminating the creation of hazardous dusts, gases, fumes and vapours. Examples of elimination controls can include:

- using products or materials that don't contain the hazardous substance
- eliminating the need to undertake the task that releases the hazardous substance into the air.

In some cases, elimination might not be possible. Where this occurs, you must work through the hierarchy of risk control measures.

Substitution

Substitution controls involve replacing the hazard with something safer (e.g. using granular or liquid formulations instead of ones that produce dust).

Isolation

Isolation controls involve isolating the hazard from people (e.g. completing the task that releases the hazardous substance in an enclosed, well-ventilated space that is separated from people).

Engineering

Engineering controls involve using a physical control measure, such as a mechanical device or process (e.g. using dust suppression, local exhaust ventilation and on-tool dust extraction).

Administrative

If you've worked through the hierarchy of control measures and risk remains, you must minimise the risk by implementing administrative controls, for example:

- planning tasks to minimise the quantity of the hazardous substance being released into the air
- reducing the time workers spend in exposure areas
- establishing policies about working with the hazardous substance and clean up requirements
- installing signage alerting people of the risks involved and how to minimise them.

Personal protective equipment

Personal protective equipment (PPE), including respiratory protective equipment (such as masks), is one of the least effective control measures because it does not control the risk at the source. PPE should only be considered after implementing substitution, isolation, engineering, and administrative controls. You should use PPE to supplement higher-level control measures.

In some situations, higher-order control measures might not control the risk fully. In these cases, PPE must also be used.

4. Review control measures

Implementing measures for controlling airborne contaminants isn't a matter of simply "set and forget". You must regularly monitor and review your control measures to make sure they are still effective and are working as intended. If you've implemented measures to control dusts, gases, fumes, mists or vapours, you must review them:

- when the control measure is not effective in controlling the risk
- before a change at your workplace that is likely to give rise to a new or different health and safety risk that the control measure may not effectively control
- if a new hazard or risk is identified
- if the results of consultation indicate that a review is necessary, or
- if a health and safety representative requests a review.

After you review your control measures, if you have identified a new or changed hazard or risk that needs to be addressed, you should:

- go back through the risk assessment steps (identify and assess hazards, eliminate and control risks and monitor and review controls)
- consult with your workers, and
- implement new control measures to address the new or changed hazard or risk that you've identified.

You must also conduct air monitoring if you are not certain if the concentration of a substance exceeds the [workplace exposure limits](#), or if it's necessary to find out if there is a risk to health. Air monitoring should be conducted by a competent person, such as an occupational hygienist and is done after you have applied control measures. Read the fact sheet: [engaging an occupational hygienist](#) for more information

Further information

For further information see Safe Work Australia's [airborne contaminants hub](#).