

Hazardous noise

Hazardous noise can destroy the ability to hear clearly and can make it more difficult to hear the sounds needed to work safely, such as verbal instructions or warning signals.

Managing the risks related to noise will assist in:

- protecting workers from hearing loss and tinnitus (ringing in the ears)
- improving the conditions for communication and hearing warning sounds
- creating a less stressful and more productive work environment.

Persons conducting a business or undertaking (PCBU) have a duty to manage noise and prevent hearing loss. Early consultation and identification of risks increases options to eliminate or minimise risks and reduce the associated costs.

Adverse effects of noise

Hearing loss can occur through exposure to noise, vibration and ototoxic substances.

The harmful effects of hazardous noise can be immediate or cumulative, which means the damage causing hearing loss increases over time through a series of repeated exposures.

Long-term exposure to noise can cause a person to experience many physical symptoms – whether the noise is hazardous enough to cause noise induced hearing loss (NIHL) or not. These physical symptoms can include:

- increased blood pressure and heart rate
- nervousness, irritability and stress
- reduced concentration
- insomnia
- hypersensitivity to noise
- changes to hormone and cholesterol levels
- increased stomach acid content



People may also experience psychosocial symptoms such as isolation, depression and fatigue and it can interfere with an individual's communication and reaction times, which could lead to accidents.

Hazard identification

People respond differently to noise. The exact level at which noise will cause damage may vary from person to person, and compliance with exposure standards may still not represent a safe condition in which no people experience work-related adverse health effects. That said, the WHS Regulations specify the exposure standard for noise in relation to a person as:

- 85 dB(A) aggregated over eight hours
- 140 dB(C) peak noise exposure

PCBUs have a duty to ensure that the noise a worker is exposed to at the workplace does not exceed the exposure standard. Hazard identification can be performed by 'walk through' assessment of the workplace, to help determine:

- work activities that are noisy
- sources of excessive noise which make it difficult to hear a normal voice when trying to hold a conversation
- workers likely to be exposed to noise
- ways of reducing noise levels.

One method could involve downloading a soundmeter app onto your mobile device and taking measurements. This simple checklist can help identify if noise may be hazardous in your workplace:



Is a raised voice needed to communicate with someone about 1m away?

Do your workers notice a reduction in hearing over the course of the day?

Are your workers using noisy powered tools or machinery?

Are there noises due to impact such as hammering or pneumatic impact tools?

Are there noises due to explosive sources (explosive powered tools, detonators)?

Do your workers complain that there is too much noise or that they can't clearly hear instructions or warning signals?

Do your workers experience ringing in the ears or a noise sounding different in each ear?

Do any long-term workers appear to be hard of hearing?

Have there been any workers' compensation claims for noise-induced hearing loss?

Does any equipment have manufacturer's information (including labels) indicating noise levels equal to or greater than:

- a) 80 dB(A) 8-hour TWA
- b) 140 dB(C) peak noise level
- c) 88 dB(A) sound power level

Do the results of audiometry tests indicate that past or present workers have hearing loss?

Risk assessment

If any of the above are identified, it is suggested a more accurate, quantitative noise assessment is conducted. Formal assessment of noise exposure should only be conducted by a competent person, in accordance with *AS/NZS 1269.1:2005 Occupational noise management - Measurement and assessment of noise emission and exposure*. Personal noise exposure monitoring is preferred over area monitoring.

Managing noise and preventing hearing loss at work Code of Practice can be used to determine whether the noise dosage for any part or whole of a working day exceeds limits – refer to Tables 9, 10 and 11, [Managing-noise-and-preventing-hearing-loss-at-work.pdf](#). Alternatively, the UK HSE has a noise ready-reckoner: <https://www.hse.gov.uk/noise/calculator.htm>

These tools would help to determine whether or not a PCBU is complying with 85 dB(A) (aggregated over 8 hours) particularly if noise exposures are variable and not over an entire 8-hour shift. An increase in noise by 3 dB(A) represents a doubling in sound level.

Risk control

Following the assessment of noise levels, a PCBU should apply risk control measures.

PCBUs should apply the hierarchy of controls, seeking to eliminate sources of noise where possible, before considering ways of reducing exposure with engineering solutions, administrative controls, or finally resorting to PPE (hearing protection):

- substitute noisy machinery with quieter models.
- make sure you follow any manufacturer's instructions on noise levels when operating specific items of plant and machinery.
- keep noise levels below the exposure standard of 85 decibels (dB)(A) in an 8-hour day and to peak levels of 140 dB(C).
- introduce engineering controls such as using sound dampeners or silencers, noise barriers/partitions/screens and isolation.
- regularly maintain plant and equipment
- introduce administrative controls, such as job rotation, job redesign or designing rosters to limit exposure.
- provide personal protective equipment (PPE) that allows appropriate protection and is:
 - o suitable for the nature of the work and the hazard, such as earmuffs and earplugs
 - o comfortable to wear, and of a suitable size and fit
 - o maintained, repaired or replaced when required
 - o used by workers who have been trained in the care and use of that PPE.



Hearing Protection

If PPE is required, there are five classes of hearing protection available which should be detailed on the packaging. The class of hearing protection provided should suit the level of noise anticipated in the work area.

Class	Suitable for the following personal noise level (dB(A), 8-hour TWA)
1	Up to 90
2	90-95
3	95-100
4	100-105
5	105-110



For example, many sponge earplugs are rated as Class 5, which implies a high level of protection. However, it is important that the user has been trained to fit these properly so that they are doing their job as intended. Click on the following link for a useful video tutorial on the [correct insertion technique](#).

Personal hearing protectors must be regularly inspected and maintained to ensure they remain in good, clean condition. If disposable earplugs are used, they should only be worn once.



Audiometric testing

A PCBU must provide audiometric testing for a worker who is carrying out work for the business or undertaking if the worker is required to frequently use personal hearing protectors as a control measure for noise that exceeds the exposure standard. They are also required to keep testing records. Where hearing protection is required, audiometry testing must be conducted:

- within 3 months of someone starting work where hearing protection is required (to establish a 'baseline') and
- then at least once every 2 years thereafter.

More frequent audiometric testing may be needed if exposures are at a high aggregate over eight hours which is equal or greater than 100 dB(A).

PCBUs, employers and workers should refer to the [Managing noise and preventing hearing loss at work - Code of Practice](#) for further information.