



HEARING PERSONAL PROTECTIVE EQUIPMENT (PPE) – THE FACTS

Personal protective equipment (PPE) – including hearing PPE – is the least effective control in the hierarchy of controls because it:

- ▶ does not stop hazardous noise at the source or in its pathway like the higher level controls
- ▶ relies on worker compliance and behaviour, and
- ▶ requires a lot of supervision

PPE should only be used to manage any risk that is leftover after you have implemented higher-level controls.

Common types of hearing PPE are:

- ▶ earmuffs
- ▶ earplugs (disposable or individually moulded)
- ▶ ear canal caps or semi-inserts

There are also special types of hearing protection, such as:

- ▶ musician's earplugs, and
- ▶ radio earmuffs

You can obtain further guidance about hazardous noise and how to control it by reading:

- ▶ *Hazardous noise and hearing loss at work – the facts*
- ▶ *Controlling hazardous noise and vibration in the workplace fact sheet*

- ▶ *Managing noise and preventing hearing loss at work Code of Practice*
- ▶ *How to Manage Work Health and Safety Risks Code of Practice* (for advice on the general risk management process)

All hearing PPE should comply with relevant Australian Standards

All hearing PPE should be:

- ▶ tested and approved in accordance with Australian Standard AS/NZS 1270:2002: Acoustics – Hearing protectors. Test results are found on the packaging of the hearing protector
- ▶ selected and maintained in accordance with AS/NZS 1269.3:2005 Occupational noise management – hearing protector program

Suppliers of hearing protectors should provide the full information on the attenuation likely to be provided including the SLC80 ratings, class and octave band attenuation values derived from attenuation measurements made in accordance with AS/NZS 1270:2002 Acoustics – hearing protectors.

A workplace noise assessment will determine what level of hearing PPE your workers must use to protect them from any leftover noise risks

You must never guess the protection level needed.

A workplace noise assessment provides you with the necessary information to know:

- ▶ which workers are exposed to hazardous noise
- ▶ the machines and processes that are generating hazardous noise





- ▶ if other factors contribute to the risk of hearing loss, such as exposure to vibration and/or ototoxic substances
- ▶ what high level controls will be the most effective, and
- ▶ what level of hearing PPE is required for any leftover risk, noting that different workers can require different levels of hearing protection.

You should set a target in-ear noise exposure level for your workers that is below the exposure standard for noise, eg: 80 dB(A). An in-ear noise level is the noise level received in a person's ear when using hearing PPE.

Then, based on the workplace noise exposure levels and the target in-ear noise exposure level, the workplace assessment will determine what level of hearing protection will correctly reduce (attenuate) the noise intensity received in a worker's ear.

Once the hearing protection level has been determined by the workplace noise assessment, you need to provide a suitable range of hearing PPE for your workers to choose from, so they can select the type that suits them best.

Suppliers of hearing protectors should provide the full information on the attenuation (reduction in noise intensity) likely to be provided including the SLC80 ratings, class and octave band attenuation values. The attenuation values should be derived from attenuation measurements made in accordance with AS/NZS 1270 Acoustics – hearing protectors.

Always involve your workers in the hearing PPE selection process and offer a reasonable choice from a range of types. Where necessary, obtain professional advice when selecting.

There are a number of factors to consider when selecting hearing PPE for your workers.

The primary criterion when selecting a hearing protector is that the level of noise entering the worker's ears (the in-ear noise level) must be reduced (attenuated) to below the criteria in the exposure standard for noise (Clause 56 of the Workplace Health and Safety Regulation 2017), which are:

- a. a total noise of 85dB(A) averaged over an 8-hour period, or
- b. a peak noise level that exceeds 140dB(C)

The recommended target in ear exposure level for workers is 80dB(A).

When selecting personal hearing protectors you should consider:

- ▶ the worker
- ▶ the level of workplace noise
- ▶ the target in-ear noise exposure level
- ▶ the degree of attenuation required.
- ▶ the comfort, weight and clamping force of the hearing PPE
- ▶ the suitability of the hearing PPE for both the worker and the environment, eg: ear-plugs are difficult to use hygienically for work that requires them to be inserted with dirty hands and in these circumstances, ear-muffs are more appropriate however ear-muffs can be uncomfortable to wear in hot environments and can make it difficult for the wearer to enter a confined space or to wear a helmet
- ▶ its compatibility with spectacles and other protective equipment used by the worker, like hard hats, respirators and eye protection.





Always involve your workers in the selection process and offer a reasonable choice from a range of types. Where necessary, obtain professional advice when selecting.

Do not provide hearing PPE that under-protects or over-protects a worker's hearing.

It is important that all hearing PPE has the appropriate protection rating.

The dangers of workers being under-protected are obvious.

But it's important to know that providing hearing PPE that over-protects a worker (ie: the hearing PPE is rated higher than the protection level determined by the workplace noise assessment) cuts out too much sound and may cause workers to experience disadvantages, such as:

- ▶ difficulty in communication, in hearing verbal instructions – even warning signals
- ▶ feelings of isolation, and
- ▶ discomfort, eg: heavy-duty earmuffs are heavier to wear and have a higher clamping force on the head.

Workers must always wear hearing PPE whenever they are exposed to hazardous noise.

To get the full protection of hearing PPE workers must wear their PPE AT ALL TIMES whenever they are exposed to hazardous noise during their work shift.

If the hearing PPE is removed, even for a short time, the protection provided to the worker will be substantially reduced.

The effectiveness of hearing PPE is reliant on several factors:

- ▶ its condition
- ▶ whether it fits the operator correctly
 - ◆ the suitability of the hearing protectors for both the worker and the environment (eg: ear-plugs are difficult to use hygienically for work that requires them to be inserted with dirty hands and in these circumstances, ear-muffs are more appropriate however ear-muffs can be uncomfortable to wear in hot environments and can make it difficult for the wearer to enter a confined space or to wear a helmet), and
- ▶ the PPEs compatibility with other equipment used by the worker, eg: spectacles; eye protection; hard hats; respirators; etc

Ensure all workers are trained and instructed in fitting and wearing the hearing PPE.

Establish safe work procedures to ensure workers are wearing their hearing before entering any hazardous noise area.

Audio headphones for iPods and other personal music devices must never be used as a substitute for approved hearing PP. They provide no protection at all – in fact, they add to the level of outside noise and contribute to damaging a person's hearing.

There are two approved methods for testing hearing PPE in Australia, with results stated as: Class or SLC80

The recommended in-ear noise level under the protector is 80dB(A).

The class of hearing protection is determined by a testing regime prescribed by AS/NZS 1270:2002 Acoustics – Hearing protectors and is marked on the packaging of the device.





AS/NZS 1269.3:2005 Occupational noise management – Hearing protector program recommends the class testing method used in most circumstances.

To identify what class of hearing protection, you only need the 8-hour average value to which the worker is exposed in dB(A) and then refer to Table 4 in the Managing noise and preventing hearing loss at work Code of Practice, which details the five classes of hearing PPE:

Measured exposure dB(A)	Class
Less than 90	1
90 to less than 95	2
95 to less than 100	3
100 to less than 105	4
105 to less than 110	5

For information on the SLC80 (Sound Level Conversion valid for 80% of the wearers) measuring method, refer to the Managing noise and preventing hearing loss at work Code of Practice.

Suppliers of hearing protectors should provide the full information on the attenuation likely to be provided including the SLC80 ratings, class and octave band attenuation values. The attenuation values should be derived from attenuation measurements made in accordance with AS/NZS 1270 Acoustics – hearing protectors.

Providing or using hearing PPE measured by the Noise Reduction Rating (NRR) system is not acceptable in Australia. The NRR system is used in the USA but can't be used in Australia because the method of testing is different from that required by AS/NZS 1270:2001.

Areas where people may be exposed to hazardous noise should be sign-posted as hearing protector areas and the boundaries of these areas should be clearly defined. Workers and other persons, including managers and visitors, should never enter these areas without wearing appropriate personal hearing protectors, regardless of how short the time they stay in the hearing protector area.

Where signposting is not practicable, you should make other arrangements to ensure that workers and others know when personal hearing protectors are required.

Hearing PPE must be regularly inspected and maintained.

Personal hearing protectors should be selected and maintained in accordance with AS/NZS 1269.3:2005 Occupational noise management – hearing protector program.

Personal hearing protectors must be regularly inspected and maintained to ensure they remain in good, clean condition. The inspections should check that:

- ear-muff seals are undamaged.
- the tension of headbands is not reduced.
- there are no unofficial modifications.
- compressible earplugs are soft, pliable, and clean. Single-use earplugs must only be worn once.

Workers must be trained in the proper use, fit, care and maintenance of personal hearing protectors.

You must provide your workers with training, information and instruction about their hearing protection on:

- the proper use
- the proper fit
- how to care for, maintain and store the hearing PPE





You should establish safe work procedures and train your workers to understand the importance of:

- ▶ applying their hearing PPE before entering any hazardous noise area
- ▶ using their hearing PPE at all times when in identified hazardous noise areas
- ▶ how to report defects in hearing protectors and noise control equipment
- ▶ how to raise any concerns regarding hazardous noise

You should also:

- ▶ place someone in charge of issuing and making sure replacements are readily available.
- ▶ carry out spot checks to ensure that workers are using their hearing protectors where and when required – and using them correctly.
- ▶ ensure all managers and supervisors set a good example and always wear personal hearing protectors when in hearing protector areas.

