

### HEARING OVER-PROTECTION

The use of hearing protection devices (HPDs) is the least preferable noise control option but is still essential for many hearing conservation programmes. In order for an HPD to be suitable and sufficient, it needs to reduce the noise levels at the ear to at least below the Exposure Limit Value (ELV) of 87 dBA.

To comply with this requirement, some employers choose HPDs with the highest noise reduction rating (SNR, H-M-L or Octave-band method). Although this is done with a good intention, it can actually have a negative effect.

Hearing over-protection can be detrimental in two ways:

- Reduced audibility of speech and warning signals
- Increased sense of isolation and psychological discomfort

The first detrimental effect can directly result in a serious safety accident, such as being unable to hear a gas alarm or misinterpreting command and starting machinery at the wrong time. The second effect can lead to a wearer removing the HPD more often to relieve discomfort, thus increasing their noise exposure dose.

To avoid that, the UK HSE recommends selecting an HPD with a noise protection rating that will help to achieve the following “noise at the ear” values:

- Below 70 dB(A) – Over-protection
- 70 to 80 dB(A) – Good protection
- 80 to 85 dB(A) – Acceptable protection
- Above 85 dB(A) – Under-protection

By choosing an HPD that will result in noise at the ear values within the preferred range, you will ensure that workers can communicate clearly, hear all the safety alarms, and not experience psychological discomfort.

Source: "The Occupational Environment" by AIHA 3rd ed. p.710

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Noise Level at the Ear (L'A Value)	Protection Rating Statement	Noise Level dB(A)	Select a protector with an SNR of ...
Below 70 dB(A)	Over-protection	85-90	20 or less
70 to 80 dB(A)	Good	90-95	20-30
80 to 85 dB(A)	Acceptable	95-100	25-35
Above 85 dB(A)	Under-protection	100-105	30 or more

