



# RISK BULLETIN



## Hearing Protection

The OSHA Noise Standard requires the use of hearing protection whenever engineering or administrative controls fail to

keep an employee's noise exposure below 90 decibels (dBA) over an 8-hour time-weighted average (TWA), whenever an employee with a standard threshold shift is exposed to 85 dBA 8-hour TWA, or whenever an employee is exposed to 85 dBA 8-hour TWA before they have received a baseline audiogram.

Protection must be made available when exposures are greater than 85 dBA 8-hour TWA. When selecting hearing protection, consideration should be given to comfort and attenuation. Since hearing protectors are an integral part of the Hearing Conservation Program, you should be aware of some of the advantages and disadvantages of the different types available. The advantages and disadvantages of different types of hearing protection are summarized in Table 1.

### HEARING PROTECTION ATTENUATION

To verify that the type of hearing protector used by employees is adequate, it is necessary to estimate the in-ear noise levels when wearing the protection. In-ear 8-hour time-weighted average levels must be less than 90 dBA (85 dBA for employees with a standard threshold shift) when wearing the protectors. Methods included in Appendix B of the OSHA Noise Standard use the Noise Reduction Rating (NRR) to estimate in-ear

TABLE 1

TYPES	ADVANTAGE	DISADVANTAGE
Disposable ear plugs	<ol style="list-style-type: none"><li>1. Comfortable</li><li>2. Easy to store</li><li>3. Fits most ears</li><li>4. Does not interfere with other safety equipment</li></ol>	<ol style="list-style-type: none"><li>1. Sometimes must be properly shaped before insertion</li><li>2. Can pick up dirt easily and contaminate ear canal</li><li>3. Can be expensive if used once then discarded</li></ol>
Non-disposable ear plugs	<ol style="list-style-type: none"><li>1. Easy to store</li><li>2. Washable with soap and water</li><li>3. Do not interfere with safety equipment</li><li>4. Usually good attenuation</li></ol>	<ol style="list-style-type: none"><li>1. Easy to lose</li><li>2. Must be fitted individually</li><li>3. Should not be worn if ear infection is present</li><li>4. If dirty, can contaminate ear canal</li></ol>
Muffs	<ol style="list-style-type: none"><li>1. One size fits most adults</li><li>2. Easy to take on and off</li><li>3. Easy to observe and supervise use</li><li>4. Generally provide good attenuation, except for low frequency noise</li></ol>	<ol style="list-style-type: none"><li>1. Uncomfortable in warm weather</li><li>2. May interfere with other protective equipment, such as hard hats and glasses</li></ol>

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levels. The packaging of most hearing protectors is labeled with the NRR. To estimate the employees' noise exposure, subtract seven from the NRR, then subtract 50% of this value from the 8-hour TWA to estimate the employees' exposure to noise. Other methods of estimating attenuation are included in the Noise Standard and can be used.

Higher NRR values indicate greater noise reduction potential provided by the protectors. The actual protection experienced by the employee will depend upon proper fitting and wearing of the device.

It is important for employers to know the noise levels present within their work areas not only for compliance reasons, but also for the general health of employees. When developing and implementing a Hearing Conservation Program, the following areas must be covered:

- Noise Monitoring
- Noise Control Analysis
- Employee Training
- Hearing Conservation Plan Development

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XL Environmental  
Risk Control Division  
505 Eagleview Boulevard  
Suite 100  
PO Box 636  
Exton, PA 19341-0636  
Phone: 800-327-1414  
Fax: 610-458-7285  
[www.xlenvironmental.com](http://www.xlenvironmental.com)

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