

# Hearing Protection Devices Meeting Kit



## What's At Stake

### HEARING PROTECTION AT WORK

The surest methods of preventing noise-induced hearing loss (NIHL) is to eliminate the source, or to reduce noise at the source by engineering methods. However, in certain situations, these measures are not possible. In such workplaces, workers may need to wear hearing protectors to reduce the amount of noise reaching the ears.

## What's the Danger

### THINGS TO KNOW ABOUT SELECTING HEARING PROTECTION DEVICES

People should wear a hearing protector if the noise or sound level they are exposed to is close to or greater than the occupational exposure limits (OEL) for noise. For most jurisdictions, this occupational exposure limit is 85 decibels (A-weighted) or dBA. Hearing protectors reduce the noise exposure level and the risk of hearing loss when worn correctly.

The effectiveness of hearing protection is reduced greatly if the hearing protectors do not fit properly, are not inserted or worn correctly, if they are worn only periodically, or if they are removed even for a short period of time. To maintain their effectiveness, the hearing protection should not be modified. Radio/music earphones or headsets are not substitutes for hearing protectors and should not be worn where hearing protectors are required to protect against exposure to noise.

## HOW TO PROTECT YOURSELF

### Types of hearing protectors

**Earplugs** are inserted in the ear canal. They may be remolded (preformed), mouldable, roll-down foam, push-to-fit, or custom molded. Disposable, reusable, and custom earplugs are available.

**Semi-insert** earplugs which consist of two earplugs held over the ends of the ear canal by a rigid headband.

**Earmuffs** consist of sound-attenuating material and soft ear cushions that fit around the ear and hard outer cups. They are held together by a head band.

### HEARING PROTECTORS' SELECTION PROCESS

- The choice of hearing protectors is a very personal one and depends on a number

of factors including level of noise, comfort, and the suitability of the hearing protector for both the worker and the environment. Most importantly, the hearing protector should provide the desired noise reduction.

- If the noise exposure is intermittent, earmuffs are more desirable since it may be inconvenient to remove and reinsert earplugs.
- Given that hearing is essential for mission readiness and effective communication both on and off duty, hearing protection should be routinely worn in noisy environments. This includes protecting your hearing from sudden loud noises, such as blasts or gunfire.
- Simple foam ear plugs that reduce the amount of noise entering the ear are the most commonly available type of HPD. Level-dependent ear plugs have small filters that enable soft noises to be conveyed with full strength while eliminating any high frequency or impulse noise.
- Noise muffs contain two tightly fitted ear cups that cover each ear entirely and block noise from entering the auditory system. They're best used for intermittent exposure to noise and provide noise reduction as well as durability.
- Studies suggest that noise muffs can provide greater attenuation, or noise reduction, than ear plugs, but may make it harder to pick up softer sounds. To alleviate this problem, some noise muffs have built-in electronic communication systems, so that wearers can communicate clearly with others.
- Technologically advanced helmets include active noise-reducing systems that monitor the sound energy around the ear and cancel any unwanted noise while preserving verbal communication. Communication ear plugs serve as microphones and can be worn in addition to the helmet for high-quality verbal clarity.

## **HEARING PROTECTION RATIONALE**

Hearing protection devices (HPDs) help lower the noise exposure of workers by blocking out some of the sound that enters their ears. They are most effective when used in conjunction with other methods of reducing exposure to hazardous noise. In an occupational Hearing Conservation Program (HCP), it is preferable to eliminate or decrease the severity of the hazard rather than to change the way people work or require workers to wear Personal Protective Equipment (PPE).

When controlling hazardous noise isn't feasible, HPDs are essential. Offer a variety of HPDs that provide options for workers in terms of comfort, ease of use, communication, and noise reduction (attenuation). Balance the need for noise reduction with the needs of individual workers and the work environment. This may mean that several types of hearing protectors are needed. Consider offering HPDs that are designed to help workers hear important sounds when there are concerns about communication and safety on the job.

## **WORK ENVIRONMENT/PROCEDURES**

HPD selection is sometimes dictated by the constraints of the work area or work procedures. For example, large volume earmuffs may not be practical in confined work situations with little head room or clearance. In that case, flat-cup muffs or earplugs may be more practical. Where work is necessary near electrical hazards, it may be desirable to use non-conductive suspension type muffs. The choice of protector may also be affected by the nature of work, as in welding where certain types of earmuffs may interfere with the welder's helmet.

Where safety glasses must be worn, cable-type temples should be used in order to allow the smallest possible opening between the seal of the protector and the head. Otherwise, earplugs should be worn, provided they are adequate.

Consideration should be given to hearing protectors that can be attached to hard hats where exposures to noise may be high but intermittent and where hard hats must be worn at all times.

## **Key Takeaways**

- Hearing protection is necessary when noise cannot be controlled to safe levels.
- Human factors such as attitude, skill, and HPD fit can be as important to the overall success as the hearing protector itself.
- Offer several HPD choices and provide effective training to help increase worker acceptance and proper use of hearing protectors.
- Consider how the hearing protectors affect safety, communication, and audibility of critical sounds.

## **FINAL WORD**

The surest methods of preventing noise-induce hearing loss (NIHL) are to eliminate the source, or to reduce noise at the source by engineering methods. However, in certain situations, these measures are not possible. In such workplaces, workers may need to wear hearing protectors to reduce the amount of noise reaching the ears.