

## APPENDIX R: TRAINING GUIDE - HEARING CONSERVATION

*Effective dissemination of safety information is an integral part of the Injury and Illness Prevention Program. This document was created to facilitate worker safety training. Training must be completed before the use of any tool or piece of equipment, exposure to any hazardous conditions, and/or when new hazards are identified.*

### **In Preparation for this meeting (items needed):**

- Training Documentation Form
- Shop Safety Manual
- Examples of hearing protection

## **Introduction**

Many chemicals used in campus shops and labs are considered hazardous. All employees who work with these materials must understand the health hazards involved and how to protect themselves. Cal/OSHA regulations require employers to communicate the hazards of these chemicals to employees through the use of chemical labels and Safety Data Sheets (SDS). Every year, millions of workers in the United States are exposed to hazardous noise. Prolonged exposure to noise over years can cause permanent damage to the ear that can't be repaired. Noise Induced Hearing Loss (NIHL) is usually gradual, and impairment isn't noticed until a substantial degree of hearing loss has already occurred. Fortunately, the incidence of NIHL can be reduced or eliminated with the use of engineering controls and hearing conservation programs.

## **Sound and Hearing**

Sound stimulates tiny hair-like cells in your inner ear. These vibrate and send auditory messages to your brain. Too much noise for too long can damage the cells until they no longer send signals to the brain. When this happens, hearing is lost. Most of the workplace sounds that cause permanent damage occur over a number of years (e.g., about eight hours per workday over 10 years or more). This slowly progressing damage may go unobserved until it's too late.

## **Noise**

Exposure to normal noise levels doesn't cause hearing loss. Hearing loss occurs because of overexposure to high noise levels. Sound is measured in decibels (dB) and is defined by strength, frequency (pitch), and duration. To help you see the difference in the decibel scale, look at these examples of various noise levels:

- 20 dB-soft whisper
- 30 dB-leaves rustling, very soft music
- 60 dB-normal speech, background music
- 85 dB-heavy machinery with soundproof cab
- 90 dB-lawnmower, shop tools
- 100 dB-heavy machinery without soundproof cab
- 115 dB-loud music, sand blasting
- 140 dB-jet engine, shotgun

A noise level of 85 dB over an eight-hour workday is loud enough to damage hearing. In the workplace, hearing protection must be used to reduce noise exposure for anyone who is exposed to 90 dB or more over the course of their workday. Sounds above 120 dB can cause hearing damage after only a brief exposure and should be avoided unless the proper hearing protection is worn.

## Discussion Topics:

- What are ways that your shop ensures that employees are not exposed to noise levels that can affect hearing ability?
- What noise levels are loud enough to damage your hearing?

## Prevention

Employers must assess noise exposures and provide appropriate hearing protection as needed for everyone in the workplace. Workers must use the protection consistently and correctly. Both equipment operators and others who are working nearby may need protection. If you work in a noisy area, be aware of the hazard and use protection even if you are not the one making the noise.

Noise exposure can be successfully reduced with the use of properly fitting hearing protection. Hearing protection works by blocking the sound waves from entering your inner ear. Hearing protection devices are labeled with a Noise Reduction Rating (NRR) that is measured in decibels. The manufacturer determines the NRR by testing under the best conditions.

When choosing the correct hearing protection, consider the following:

- Does it provide the adequate NRR?
- Does the protection interfere with your work?
- Does the device fit properly?

There are two main types of hearing protection: ear plugs and ear muffs. The following table lists the advantages and disadvantages of each.

EAR PLUGS	
Advantages	Disadvantages
Small	May cause irritation
Lightweight	Easy to lose
Inexpensive	Must wash hands before inserting
Comfortable	Only protect up to 105 dB
May be worn with other PPE	Must be inserted properly

EAR MUFFS	
Advantages	Disadvantages
Easy to use	Heavier than plugs
Designed to fit anyone	Uncomfortable
Wont Irritate the ear	Bulky
Reusable	Must keep seal to be effective

### Discussion Topics:

- When do employees need to wear hearing protection in your shop?
- What type of hearing protection is available for employees to wear when working?
- What are the advantages and disadvantages of ear plugs and ear muffs? Which type of protection is most appropriate for the tasks your workers complete?
- Do your employees know how to insert ear plugs?

### Key Takeaway Points

- Occupational hearing loss can occur slowly over a long period of time and be unnoticeable until damage is permanent.
- Once hearing loss occurs, it cannot be repaired.
- Hearing loss occurs because of overexposure to high noise levels.
- When noise levels exceed 85 dB over an eight-hour workday, hearing protection is required.
- Supervisors are responsible for assuring that hearing protection provided to employees provides adequate Noise Rating Reduction (NRR).
- Employers are required to administer a hearing conservation program for employees in environments where they are exposed to noise levels at or above 85 dB.
- If sounds in your shop are louder than conversational levels for prolonged periods of time, you must conduct a sound survey.
- Ringing in the ears after leaving a shop is normal sign of possible hearing damage.
- If your ears ring or sounds are muffled after leaving a shop, you should be using ear protection when working.