HEAR FOR GOOD

Preventing Exposure at Work

WorkSafeBC

WORKING TO MAKE A DIFFERENCE

worksafebc.com

Workers' Compensation Board of B.C.

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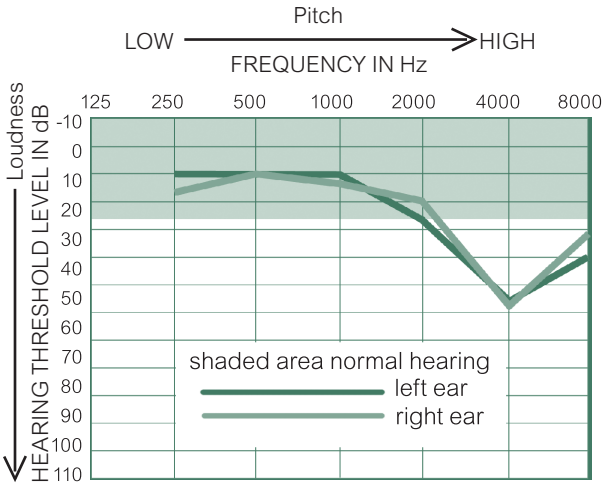
Noise-induced hearing loss

One quarter of all British Columbia's workers are exposed to occupational noise loud enough to damage their hearing. Noise is the most common health hazard in industry.

Hearing loss can occur so gradually that you may not realize it's happening. Noise-induced hearing loss is permanent—it can't be cured or improved

Excessive noise damages tiny sensory cells deep inside your ear. The first danger sign of occupational hearing loss is the inability to hear high-pitched sounds. An audiogram, a graph of your hearing, shows high-pitched hearing loss like this:



As the damage continues, the loss will affect your ability to understand speech.

Noise can also cause ringing in your ears. At the end of a day's work, you may notice that sounds seem muffled.

How much is too much?

There are maximum limits for noise exposure in the workplace, both for loudness and duration.

A simple way to test the noise level is to stand at arm's length from someone and talk to him or her. If you must raise your voice to be heard, the noise is probably excessive.

The length of your exposure to noise is as critical as the loudness. Continuous noise throughout a shift is more damaging than a few minutes at a time.

If your ears ring, or sounds seem muffled after the noise stops, your hearing has been affected, at least temporarily.

A noise level greater than 85 decibels (dBA) averaged over eight hours can damage your hearing.

Noise control and hearing protection

It's your employer's responsibility to reduce workplace noise.

Workplace design is the best way to decrease noise exposure. The source of noise can be housed in sound-muffling enclosures (for example, enclosures for air compressors or punch presses).

If this isn't practical, a worker can be enclosed in a booth that protects him or her from noise (e.g., headrig sawyers and edger operators in sawmills).

Another way to reduce noise is to install sound absorbent materials on walls or ceilings near noisy machinery. Workers' noise exposure can also be reduced by decreasing the time spent in noisy areas through job rotation.

Until noise can be reduced to safe levels, your employer must provide you with appropriate hearing protection, at no cost to you.

Choosing hearing protection

The Canadian Standards Association (CSA) rates hearing protection as Class A, B, C, or Grade 0, 1, 2, 3, or 4, depending on the amount of noise reduction the protector provides. The recommended protection for an eight-hour noise exposure is:

$L_{ex,8}$ (dBA)	Grade	Class
≤ 90	1	C
≤ 95	2	B
≤ 100	3	A
≤ 105	4	A
≤ 110		Dual*

**Dual hearing protection required. Use a minimum of a Grade 2 or Class B earmuff and a Grade 3 or Class A earplug.*

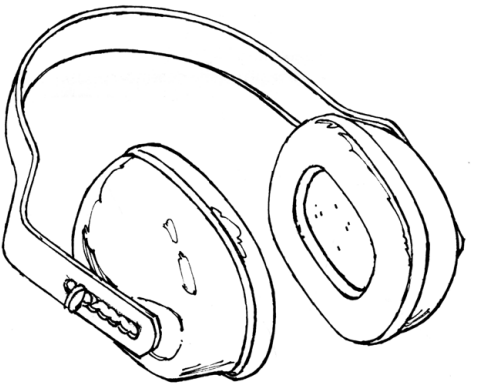
The recommended class or grade of protection increases with noise level. For example, Class C or Grade 1 protection is recommended for driving a heavy truck (89 dBA). Class A or Grade 4 is recommended for operating a pile driver (104 dBA). For extremely high noise levels, wearing double protection (earplugs and earmuffs) is recommended. **Note**: Grade 0 is not recommended for occupational use.

Others factors are just as important as the noise level of the job:

- Your hearing ability
- Your need to communicate on the job
- Other personal protective equipment worn, such as safety glasses or a hardhat
- Temperature and climate
- Size of your ear canal, shape of head and jaw

Earmuffs

Earmuffs can be Class A, B, C, or Grade 0, 1, 2, 3, 4. Earmuffs have a hard outer shell to bounce the sound away from the ear, and a sound-absorbent cuff to snugly fit your head and stop sound from leaking in. Some have fluid-filled cuffs, so check the freezing point if you work in cold conditions.



Fitting earmuffs

It is essential your earmuffs fit properly. Follow the manufacturer's instructions for top, bottom, front, and back. The cuffs must fit snugly over your entire ear, and the headband must be adjusted to keep the muffs comfortably in place.

Push your hair back so the cuffs fit comfortably and make a good seal around your ear. Make sure the cuffs aren't resting on anything that will break the seal and let noise in, such as a hardhat suspension band, hair-band, or barrette.

If you wear glasses, try wearing the kind with thin wire temple pieces. Foam pads are available to cushion the place where glasses pass under the earmuffs. This helps to keep noise out.

Earmuff care

Replace the cuffs if they become hard or cracked. Kits are available with replacement cuffs and liners. This is probably necessary every six months to one year.

Check the tension of the headband. If it's too loose, the entire earmuff must be replaced.

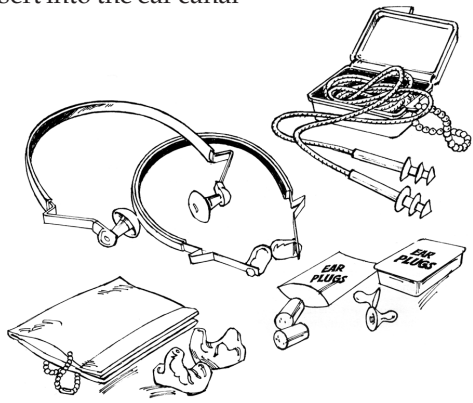
Keep the cuffs clean with mild soap and water. Don't use alcohol or solvents; they can crack the material or irritate your skin.

Never drill a hole in an earmuff to reduce pressure on the ears. It lets sound in. If you feel pressure, try a more comfortable set of earmuffs.

Earplugs and earcaps

Earplugs can be Class A, B, C, or Grades 0, 1, 2, 3, 4. They keep noise out by sealing off the ear canal. There are several types of earplugs:

- Reusable plugs made of soft vinyl or silicone, which may be custom-molded or have flanges to accommodate different-sized ear canals
- Compressible plugs made of self-molding foam or glass down
- Reusable canal cap earplugs held together with a band worn over the head or under the chin; some cover the ear canal opening, others insert into the ear canal



Choosing earplugs

Try to have a trained person select your earplugs. Some plugs come in different sizes. You need the right size plug for your ear canal; your ears may even need two different sizes. If the plug doesn't make a good seal in your ear canal, it won't protect your hearing.

Fitting plugs into the ear

Reusable plugs often have a tab that you hold onto as you insert the plug into your ear canal. Use one hand to lift your ear up and back, to straighten the ear canal. Hold the tab and insert the plug well into the ear canal, using a twisting motion.

A foam or sponge plug must be rolled firmly with your thumb and forefinger before inserting. Using your other hand, lift your ear up and back to straighten the ear canal. Insert the plug well into the ear canal and hold in place for a few seconds to allow the material to expand.

If the plug feels tight at first, it's probably a good fit. If it feels loose, it's too small. When a plug is properly fitted, your voice sounds lower and muffled to you, as though you were in a barrel.

Head movements, talking and chewing can all loosen the plugs, so take them out and refit them several times during the day.

If you feel pain when you insert the plug, see your doctor. You may have an ear infection or some hard wax in the ear canal.

Care of earplugs

Wash reusable earplugs and canal caps with soap and water, and keep them in a case. Some earplugs come on a cord, which makes them easier to keep track of. Replace reusable plugs when they become hard or cracked, usually about every six months.

Custom-molded earplugs can last many years, but should be replaced if they begin to feel loose.

Discard compressible plugs when they become dirty or hard.

Don't tamper with the plug to make it comfortable — try a different size or type of plug.

Getting used to plugs and muffs

While wearing earmuffs or plugs, noises will sound different and it may take time to get used to the new sounds. Once you have, you may even find that you are less tired at the end of the day — noise can be stressful.

You may feel a little disoriented while getting used to locating the direction of sounds, especially with earmuffs. You'll adjust to this after a while. If you feel any dizziness, it's not from your hearing protection; contact your doctor.

Some workers worry that if they're wearing hearing protectors, they won't hear important warning sounds.

If your hearing is good, wearing protectors will usually allow you to pick out important sounds. Earmuffs and plugs mainly screen out high-pitched noises, but won't stop you from hearing voices or alarm signals. Try them and see.

If you're already hearing-impaired, hearing protection can cause communication problems. Class B, C, or Grade 1 or 2 protectors may allow better communication and detection of warning signals. If you still have problems, other special products are available. Call the Hearing Loss Prevention Section at 604 273-3090, or toll-free 1 888 621-7233, local 3090.

More important than the class is how long you wear your protection. For hearing protection to be effective, it must always be worn during noise exposure.

Non-occupational noise exposure

Hearing damage can happen anywhere. Don't forget to consider off-the-job or recreational noise as a potential hazard. If your hearing is at risk anywhere, wear protection. Noise above 85 decibels, combined with long exposure, can permanently damage your hearing. Lawnmowers, power tools, firearms, and stereo headsets all produce high noise levels.

WorkSafeBC and hearing loss prevention

The Hearing Loss Prevention Section of WorkSafeBC provides information about hearing protection classification, and authorizes industrial audiometric technicians to test hearing and advise on the proper use and care of hearing protection.

If you aren't wearing the proper hearing protection, the technician can advise you. He or she can check the condition of your hearing protection, and advise whether it needs replacement or repair.

For more information, contact:

Hearing Loss Prevention Section
WorkSafeBC
PO Box 5350 Stn Terminal
Vancouver BC V6B 5L5
Phone 604 273-3090
Toll-free 1 888 621-7233, local 3090

The WorkSafeBC web site has additional materials on hearing loss prevention. Go to WorkSafeBC.com, click on Safety at Work, and choose Hearing Loss Prevention.

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