Noise exposure at work

Hearing damaging noise

Noise-induced hearing loss is the occupational disease with by far the highest number of recognised cases and is incurable. It not only causes considerable economic damage, but also results in a significant loss of quality of life for those affected.

Hearing damage can be caused both by long-term exposure to excessive noise and by sound pulses of extremely high intensity (e.g. gunshots or explosions). Even a single occurrence of impulse noise can lead to irreparable hearing damage. Therefore, this peak value must never be exceeded.

When assessing noise exposure over a working day, it is necessary to know both the noise intensity and the duration of the noise exposure. These factors can be used to determine the average noise level to which an employee is exposed over an eight-hour period. If this exceeds 80 decibels (action value), hearing protection must be provided to those affected; they must be informed of the dangers of noise and instructed on how to avoid noise and on the correct use of hearing protection.

If the average permanent noise level exceeds the limit value of 85 decibels (or 137 decibels for peak levels), noise reduction measures must be taken. These may include, for example:

- structural and acoustic measures, e.g. through sound insulation and sound-absorbing surfaces
- Use of quieter equipment and working methods
- Increasing the distance between noise sources and employees, possibly in separate rooms
- Shielding of noise sources, dampening of structure-borne noise (vibrations) transmitted to the floor
- Reducing the duration of exposure

If an assessment of noise exposure cannot rule out the possibility of the action value or limit value being exceeded, noise measurements must be carried out.

If, despite the above measures, it is not possible to comply with the limit values, the affected workers must wear hearing protection, and a medical noise examination is required before work is started and at intervals of five years. Furthermore, a register of workers exposed to noise must be kept.

Hearing protection must always be available for individual (= personal) use.

Hearing protection is available in the form of earplugs that are inserted into the ear canal (expandable foam earplugs, earplugs with ear hooks, pre-formed earplugs and custom-made earmoulds) and as earmuffs. When choosing hearing protection, it is important to consider not only adequate noise reduction but also speech and signal comprehensibility, exposure to heat and dust, and personal comfort.

Disturbing noise

In the case of disturbing noise, the best way to determine the noise level for comparing against limit values is by taking a measurement. The measurement parameter is the same as for noise that poses a risk to hearing, but a 6-decibel penalty is applied for noise containing tones or impulses.

From sound pressure levels of around 50 decibels onwards, the subjective experience of annoyance and a significant negative impact on mental performance may increase, particularly during tasks requiring memory, concentration and attention.

An average noise level of 50 decibels must not be exceeded in rooms where predominantly cognitive activities are carried out. Cognitive activities include, for example, creative work or learning activities, which permit only very low noise levels.
A limit of 50 decibels also applies in recreation and on-call rooms, medical rooms and staff accommodation, although noise and speech generated by people present are not taken into account.

At sound pressure levels of 65 decibels or above, physiological reactions may occur, such as an increase in blood pressure or heart rate. Mental performance also deteriorates further, requiring the affected person to make greater efforts to compensate.
In rooms where simple office tasks or comparable activities in terms of noise levels are carried out, work may only be performed, if the noise level does not exceed 65 decibels.
The use of hearing protection to ensure that noise levels remain below the limits for disturbing noise is not permitted.

Good results in reducing noise levels in offices can be achieved through room acoustic measures, such as sound-absorbing surfaces and partition walls. Such measures can also improve the ‘acoustic environment’ by reducing reverberation, thereby increasing speech intelligibility.

Imprint

Media owner and publisher: Federal Ministry of Labour, Social Affairs, Health, Care and Consumer Protection (BMASGPK), Section VIII Labour Law and Central Labour Inspectorate, Favoritenstraße 7, 1040 Vienna **Place of publication and production: Vienna** **Layout & printing:** BMASGPK **Stand:** April 2026