

ASTRAZENECA SAFETY, HEALTH AND ENVIRONMENT (SHE) GLOBAL STANDARD

Workplace Noise and Vibration Risk Management

This Global Standard specifies workplace noise and vibration hazards, ensures compliance with local legislation, regulatory standards and requirements.

Who is this Standard for?

Compliance with this Global SHE Standard is mandatory for all AstraZeneca Group sites and across all business functions.

1. PURPOSE

The purpose of this Standard is to:

- Specify the minimum standards for the identification and assessment of workplace noise and vibration hazards including the provision of a hierarchy of control for use in the control of noise and vibration exposure.
- The control of noise will assist in managing the risk of work related hearing damage (loss of hearing or permanent ringing – tinnitus, in the ears) caused by high noise levels.
- Specify the minimum standards for the identification, assessment and control of workplace vibration hazards in order to manage the risk of work related illness and injury (nerve damage) caused by vibration exposure.
- Specify the minimum standards to ensure compliance with local legislation, regulatory standards and requirements.

The underlying principles of good noise and vibration risk management are to:

- Protect the people from developing noise induced hearing loss
- Protect people from developing the health effects associated with hand-arm and whole body vibration exposure.
- Provide competent resources.
- Assess and identify the noise and vibration risks within each workplace.
- Assist in managing the use and maintenance of noise control equipment and hearing protection.
- Implementation of an appropriate hearing conservation programme.
- Assist in managing the use and maintenance of vibratory hand tools and ride on equipment.
- Provide health surveillance for those people at risk.
- Provide appropriate information and training to those employees exposed to noise and vibration hazards.

2. AUDIENCE AND SCOPE

Compliance with this Global SHE Standard is mandatory for all AstraZeneca Group sites and across all business functions.

The scope of this standard covers the management of workplace noise and vibration hazards (covering both hand-arm and whole body vibration). It does not cover environmental noise or vibration, noise or vibration from non-work related activities, ultrasound or low level nuisance noise that present no risk of injury.

3. REQUIREMENTS

Sites/Functions shall have local arrangements in place that meet the minimum standards set out in this document and that also satisfy any local and statutory requirements. Local sites are encouraged to aim to exceed the requirements, where feasible, outlined in this Standard.

Note that any noise values stated within this document are based on a 3dB exchange rate.

Low noise purchasing policy

There shall be local arrangements in place to ensure noise is considered when selecting new, replacement or hired equipment (stationary or portable) and that the overall effect of the noise from this equipment is assessed in combination with other noise sources. Noise levels for new, replacement or hired equipment must be as low as reasonably achievable and, where possible, not greater than 75 dB(A) when the equipment is being operated under loading (measured 1m away from the equipment and at a height of 1.6 m).

Risk assessment and review

Noise and vibration hazards and risks must be considered as part of the SHE risk management process.

For existing and new equipment, line and project managers must ensure that noise and vibration hazards within their area of responsibility are identified and managed responsibly as described below:

Where people are at risk from exposure to noise (either continuous or impact), a noise risk assessment is required.

In Industrial Hygiene practice, indicators of where noise risk assessments may be required include:

- The area is significantly noisier than the sounds of everyday life, the noise is intrusive but normal conversation is possible - possible noise level of 80 dB(A)
- Having to shout to talk to someone 2m away - possible noise level of 85 dB(A)
- Having to shout to talk to someone 1m away - possible noise level of 90 dB(A)

Where people are at risk from exposure to vibration (either hand-arm or whole body), a vibration risk assessment is required.

Indicators of where exposure to hand-arm vibration would need to be assessed include where extended use of vibratory hand tools is required. Whole body vibration should be assessed where ride on equipment is used for extended periods, particularly on uneven ground.

When assessing workplace noise and vibration risks the following factors must be considered:

- Level of noise/magnitude of vibration.
- Duration of exposure (taking into account any overtime) and the range of sources for these exposures.
- Type of noise (e.g. frequency, continuous, high levels of short duration).
- Type of vibration (hand-arm or whole body) and the range of sources for these exposures.
- People who are at special or particular risk (e.g. those with pre-existing health conditions, increased susceptibility to related health conditions, the young or pregnant women), where that information is available.
- The presence of any chemical substances which have the potential to affect hearing/exacerbate exposure - ototoxic substances. Ototoxic effect can be from therapeutic drugs such as certain antibiotics in addition to routine workplace chemicals such as formaldehyde and gases such as carbon monoxide.
- The impact of ambient noise levels on audible warning signals (audible warning signals should where possible be set at a level appropriate to background noise within an area, as a guide, a 10 dB(A) difference between background/ambient noise levels and the alarm noise level is advisable).
- Manufacturers information on noise (and where applicable vibration) emissions from equipment
- Availability and use of control measures, including appropriate hearing protection.

Risk assessments must be conducted by competent persons and shall be reviewed and updated periodically and whenever there is a significant change that may alter the level of exposure.

If noise or vibration measurements are necessary competent persons shall carry them out, using appropriate and calibrated equipment.

A [noise risk assessment tool](#) is available through the GSHE Safety & Health Exposure Assessment and Control SPOL pages.

Workplace Noise Exposure Limit

The company specified workplace noise exposure limit is 85 dB(A) (137 dB(C) for impact noise) based on an 8 hour exposure period. Employees exposed at or above this level are required to utilise hearing protection on a mandatory basis and action taken to mitigate the noise source(s) where possible.

Employees exposed to noise at or above the 85 dB(A) threshold shall be part of a continuing and effective HCP.

It should also be ensured that local and statutory requirements are complied with.

Workplace Vibration Exposure Limits

The company specified vibration exposure limits are as follows: -

Hand Arm Vibration - $5.0 \text{ m/s}^2 \text{ A(8)}$

Whole Body Vibration - $1.15 \text{ m/s}^2 \text{ A(8)}$

These are the limits that should not be exceeded based on triaxial measurements (with the WBV limit value including K factor correction).

It should also be ensured that local and statutory requirements are complied with.

Control measures employed to manage the risks of exposure

Where a noise or vibration risk has been identified and assessed, action must be taken to reduce the risk of injury.

The controls must be applied in accordance with the following hierarchy:

1. Eliminate or replace hazards with alternatives that present a lower overall risk.
2. Re-design or modify processes or tasks, to minimize the potential for exposure.
3. Apply appropriate engineering measures to control exposure.
4. Minimize any residual risks through the use of administrative control measures, for example procedures, instructions, training.
5. Provide personal protective equipment (PPE - including hearing protection or gloves) for use only as secondary controls.

Controls shall be implemented to reduce the health effects of noise and vibration to the lowest feasible level. Where implemented controls cannot reduce the hazards of noise and vibration to a safe level and PPE shall be used to supplement the controls.

Document the rationale for the option(s) chosen to control worker exposures and justify any control decisions that do not utilize the highest level of control. An effective programme of controls will often include more than one element from the hierarchy.

Note: Sometimes a minor alteration may be all that is required to reduce the risk. If the problem is complex, it may be necessary to contact a specialist noise/vibration control engineer or SHE contact.

Personal Protective Equipment (PPE)

PPE (including hearing protection) must not be used as an alternative to controlling noise or vibration exposure by technical or organisational means. It shall only be used as a last resort where there is a need to provide additional protection beyond what has been achieved through other control measures, or as an interim measure while they are being developed.

Whenever an employee voluntarily requests hearing protection, the PPE shall be provided and the employee trained on the purpose of the PPE, issues with potential over protection and appropriate donning/ doffing and cleaning procedures.

Specifically for noise:-

- Where the risk assessment identifies the need to wear hearing protection it shall be provided and worn.
- Arrangements must be in place to ensure the selection of appropriate hearing protection so as to minimise the effects of over/under protection.
- There must be arrangements in place to ensure that the use, care and maintenance of hearing protection are managed and that employees have received training in its use.

PPE, specifically gloves (including anti-vibration gloves) offer limited protection when using vibratory hand tools and as such should not be relied upon as a primary control technique. Gloves will however help keep hands warm and dry when using hand tools which can help minimise the damage caused. Compatibility of any gloves in use with other agents in the workplace should also be considered.

Where the use of PPE is required, or chosen to be used as an extra precaution, arrangements shall be made for the appropriate selection, use, maintenance, storage, decontamination and disposal of equipment.

Health Surveillance

Where the risk assessment identifies a risk to people's health from noise or vibration exposure, a health surveillance programme must be in place.

Arrangements must be in place to ensure that health surveillance is carried out by a competent person before a person commences work in an area identified as a noise risk and at appropriate intervals thereafter. Vibration pre-screening and ongoing re-evaluation may also be required.

It is imperative that any diagnosed noise induced hearing loss or vibration injury is reported in accordance with the global reporting criteria and also any local legislative reporting requirements and subsequently investigated.

Communication and training

There must be adequate communication and appropriate training in order to ensure people understand the level of risk they are exposed to, how it is caused and the possible effects and consequences.

The workers and/or their representatives shall be provided with:

- The outcome from the risk assessments.
- Information on the specific noise and/or vibration hazards occurring at the workplace and what is being done to manage the risks and control exposure.
- Training on appropriate precautions and actions to be taken to minimise exposure while safeguarding themselves, and other workers at the workplace including the correct use of the provided controls.
- Training in the correct use and where appropriate, maintenance of any required noise/vibration control equipment including PPE to ensure that it continues to be effective. Training would generally reflect information/recommendations from the equipment manufacturer. Training should also include detail on the sourcing of replacement appropriate PPE and what to do in the event of equipment deterioration.
- Health surveillance provisions.
- Symptoms of hearing loss or vibration injury and how they should be reported.

In addition, appropriate signage should be used to identify noise or vibration hazards within the workplace, it should be ensured that this signage is prominently positioned.

4. INTERPRETATION OF THE REQUIREMENTS

Functions/Locations/Sites may implement arrangements and allocate responsibilities to cover the above requirements on a function-wide or site-wide basis rather than leaving the execution of the above steps to individual managers.

5. RESPONSIBILITIES

The AstraZeneca SHE Policy sets out the responsibilities for the line management of SHE across the company. Those responsibilities extend to the implementation of, and compliance with, these mandatory “Standards”.

Specifically, in relation to workplace noise and vibration risk management, there must be access to competent persons to carry out tasks that may be involved in noise and vibration risk assessments. In order to be considered a competent person, the individual must have sufficient training, experience and knowledge to be able to undertake their responsibilities. The competent persons can be either AstraZeneca staff, with appropriate skills, or external contractors who have been appropriately assessed.

Employees must be made aware of:

- That it is obligatory for them to follow local procedures and instructions and to report to management where faults and deficits could have an adverse effect on health.
- Have awareness of the noise and vibration hazards within their areas of work.
- The systems incorporated to control those identified exposure risks to tolerable levels.

Line/Project managers must have access to competent support to:

- Coordinate performance of risk assessments; identify hazards and determine exposure potential including the arrangement of exposure assessment where appropriate. There is also a requirement that risk assessments are periodically reviewed to ensure they are still relevant.
- Seek appropriate support in selecting control measures in accordance with the hierarchy of control. There will also be a responsibility to assess the effectiveness of the chosen control measures both at commissioning and on a scheduled basis thereafter.
- Ensuring that selected control techniques remain effective over time and arranging maintenance of said controls as required.
- Provide employees with timely, robust, coherent, accurate information, instruction and training on the risks associated with noise/vibration exposure in the workplace.

GLOSSARY

Noise - Noise is unwanted sound judged to be unpleasant, loud or disruptive to hearing.

Decibel (dB) - The units of sound level and noise exposure measurement.

A weighting - A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.

dB (A) - Decibels A weighted

C weighting - A weighting used to measure peak, impact or explosive noise.

dB (C) Decibels C weighted

LAeq - A sound equivalency level over a period of time. Expressed as an A weighting in dB.

Hand-Arm Vibration (HAV) - Mechanical vibration transmitted into the hands and arms during the use of vibratory hand tools.

Whole Body Vibration (WBV) - Mechanical vibration which is transmitted into the body, when seated or standing, through the supporting surface, during a work activity.

m/s² - Metres per second squared, units of measurement used to describe vibratory magnitude/acceleration

A(8) - The magnitude of mechanical vibration to which a worker is exposed during a working day, normalised to an 8-hour reference period, which takes account of the magnitude and duration of the vibration.