

Introduction

This sheet is produced to provide guidance on reducing the noise exposure of employees and others who may be affected in the typical foundry. It is aimed at employers, employees, and their representatives.

Background and scale

There are many items of workplace equipment and activities in the foundry that can produce large volumes of noise across a range of frequencies.

Exposure to excessive noise over long periods of time has the potential to damage the tiny hairs located in the inner ear. Should this occur it can result in noise induced hearing loss (NIHL), which can be temporary but often becomes permanent. Exposure to a single very loud event such as an explosion can dislocate bones in the inner ear or burst an eardrum. It is known that the repeated exposure to high levels of noise can cause the onset of tinnitus (ringing in the ears). Noise can also be linked to psychological effects such as stress, sleep disturbance or aggressive behaviour in some individuals.

Noise can also be a safety hazard at work, interfering with communication and making warnings harder to hear.

Employers have a duty of care under legislation to reduce the risk of hearing damage to employees by controlling their exposure to noise in the workplace.

The 2008/09 Labour Force Survey (LFS) shows an estimated 17,000 individuals who worked in the previous 12 months, believed their hearing problems were the most serious of their work related illnesses.

Who is at risk?

Any employee who is working with or working close to an item of noisy machinery being operated is at risk. This includes people passing through the area but who do not necessarily work with the noise for the whole of their working day.

Where in foundries is it a problem?

Exposure to noise can be found in many areas of the foundry but it is most likely to be a problem in the melting, shake-out, knock-out and fettling areas.

What you need to do to comply?

Risk assessment

To help you decide what you need to do, start by assessing the risks from noise within your foundry. If any of the following are true in the workplace, the likelihood is that the workplace is too loud and actions will be required to reduce the exposure to noise in the premises:

- The noise is intrusive - like a busy street, a vacuum cleaner or a crowded restaurant - for most of the working day?
- Employees have to raise their voice to have a normal conversation when about 2m apart for at least part of the day?
- Employees use noisy powered tools or machinery for over half an hour a day?
- Employees have muffled hearing at the end of the day, even if it is better by the next morning?

As part of any risk assessment, a noise survey may need to be carried out for the site, concentrating on the areas with the loudest noise. Noise is complicated to measure and the assessment needs to be undertaken by a competent person who can correctly interpret the results and advise on potential actions to be taken. The maximum exposure limits for noise are 87dB (daily or weekly limits) and 140dB for peak exposure e.g. a one-off noise event. (See Appendix 1 for examples of noise levels and action limits)

Management controls

You should have a noise at work policy which details all of the measures you are taking to reduce the risk of NIHL within the foundry. The policy should follow the hierarchy of control with exposure to noise eliminated where possible. Where this is not possible, engineering controls to reduce noise levels/exposure should be put in place. Going straight to the use of Personal Protective Equipment (PPE) without considering and applying the hierarchy must be avoided.

Elimination/Engineering

There are various ways in which the use of machines/processes that generate noise can be controlled:

- Reducing the loading of plant so there are less parts that can rattle/vibrate on the table.
- Use sound insulating materials on internal surfaces or additional screens where it is safe and practical to do so.
- Reducing the amount of flash through improved pattern making and mould build/strength to reduce the fettling required.
- Using low noise producing tools and machines.

Reduction of noise exposure

Where the use of noisy equipment or tools can not be eliminated you should do everything you can to reduce the noise exposure of your employees. If possible, noise refuges or quiet areas should be provided where employees can remove their PPE for a period of time.

Suitable refuges may include a canteen or rest areas where PPE can be removed for a longer period of time.

Equipment, tool selection and care

When selecting new equipment and/or tools, information should be sought from the suppliers about the noise levels their equipment or tools produce. A policy to only purchase low noise plant and tools should be put in place.

Maintenance and inspection programmes should be in place so that equipment and tools are routinely checked for wear and repaired / adjusted as required. Where a tool cannot be repaired it should be withdrawn from use and a replacement purchased.

Hearing Protection/PPE

Hearing protection should be issued to employees:

- where extra protection is needed above what has been achieved using noise control; or
- as a short-term measure while other methods of controlling noise are being developed

Employees should be involved in the selection of any hearing protection required and it is always better if a selection is available.

Training Employees

The individual work techniques used by employees to operate tools can affect the extent to which noise is generated. It is therefore essential that employees who use powered tools are made aware of what NIHL is and are trained in the necessary precautions to minimise the risks. This includes how to place products into cages / stillages / scrap bins rather than throwing them which makes more noise on impact.

Employees must also be trained to correctly wear and maintain any hearing protection they have to use.

Monitoring and supervision

You need to carry out regular checks to make sure that all of your controls are working as they should be to reduce the risk of noise induced hearing loss. This will include:

- Supervising workers to make sure they are using controls properly and following procedures
- Checks on maintenance records to ensure tools are being maintained when they should be
- Monitoring employees to ensure that they are wearing any hearing protection correctly
- Review of the risk assessment if anything changes

Over Protection by PPE

It is important to consider the level of protection needed against the observed noise levels. It is possible to purchase hearing protection which reduces the noise too much. This creates its own risk of users not being able to hear sufficiently to be aware of hazards such as moving

equipment, warning alarms and verbal instructions from work colleagues etc. This could place the user in greater danger.

Health surveillance

Health surveillance is about detecting work-related ill health at an early stage and acting on the results. The aims are to check the long-term effectiveness of control measures and to safeguard the health of employees (including identifying and protecting people at increased risk).

When working with equipment or processes where there is a significant risk of NIHL, a programme of occupational health surveillance will be required under the Management of Health and Safety at Work Regulations 1999.

Go to the HSE website noise page

<http://www.hse.gov.uk/noise/index.htm> for advice on health surveillance.

Further reading and information

- Control of Noise at Work Regulations 2005
- Control of Vibration at Work Regulations 2005
- Workplace (Health, Safety & Welfare) Regulations 1992
- Provision & Use of Work Equipment Regulations 1998
- Management of Health and Safety at Work Regulations 1999
- Personal Protective equipment at Work Regulations 1992
- HSE Risk management and assessment web pages at: <http://www.hse.gov.uk/risk/index.htm>
- HSE Noise at work web pages at: <http://www.hse.gov.uk/noise/index.htm>
- HSE Vibration at work web pages at: <http://www.hse.gov.uk/vibration/index.htm>
- HSE Work equipment web pages at: <http://www.hse.gov.uk/work-equipment-machinery/index.htm>
- HSE Health surveillance web pages at: <http://www.hse.gov.uk/health-surveillance/index.htm>

This information sheet is one of a series of information sheets developed by the Castings Health and Safety Advisory Committee (CHASAC).

The guidance may go further than the minimum you need to do to comply with the law.