

8 noise at work

Excess noise is one of the most common occupational hazards. Most industrial activities are confronted with the issue at some stage. Its most serious effect is irreversible hearing loss. It is estimated that each year there are 1.628.000 new cases of occupational noise induced hearing loss. During 2002 some regulatory developments occurred which will force the issue of occupational noise exposure back on the agenda for most industrial operators worldwide.

Most countries have thusfar been using occupational noise exposure threshold limits of 85 dB(A) (lower exposure action level) and 90 dB(A) (upper exposure action level). In 1994, the American Conference of Governmental Industrial Hygienists (ACGIH) already recommended as a threshold limit value (TLV) for noise exposure an 8-hour equivalent level of 85 dBA. A similar proposal from the European Commission was adopted after ten years with Directive 2003/10/EC [ID 4429]. The European Union thus follows the example of most Canadian Provinces as well as the Netherlands which reduced the exposure limits to 85 dB(A) as the upper exposure action level in 2000. Note that at the end of 2002, the US-OSHA issued an advance notice of proposed rulemaking on the application of the general industry hearing protection requirements to construction work [ID 5468].

The main changes brought by Directive 2003/10/EC on noise exposure are that the action levels were decreased from (85 dB(A) and 90 dB(A)) to 80 dB(A) and 85 dB(A) respectively. As a consequence employers will have to ensure that from 15 February 2006 (the deadline for transposal of the Directive into the legislation of Member States), they take the following actions where noise exposure of employees, not taking account of hearing protection, exceeds 80 dB(A) and 112 Pascal:

- availability of hearing protectors;
- provision of information and training;
- availability of audiometric testing where there is a risk to health.

Where noise exposure of employees, not taking account of hearing protection, exceeds 85 dB(A) and 140 Pascal:

- establishment and implementation of a programme of technical and/or organisational measures intended to reduce exposure to noise;
- marking, delimiting and restriction of access to areas;
- mandatory use of hearing protectors;
- the right to hearing checks by a doctor.

Noise exposure levels of employees, taking account of any hearing protection worn, must be at or below 87 dB(A) and 200 Pascals.

Further requirements of Directive 2003/10/EC include:

- risk assessment of noise levels where workers are likely to be exposed to risks;
- elimination of risks at source or reduction to a minimum;
- a transitional period of two years for the music and entertainment sector; and
- a transitional period of five years for application of the noise exposure levels to sea transport.

The Health and Safety Executive of the United Kingdom has carried out an impact assessment study in connection with Directive 2003/10/EC which aims at determining the benefits and costs involved for UK industry to comply with the new requirements of Directive 2003/10/EC. The impact assessment study put the total quantifiable health benefits to UK society over ten years at between £265.1 million and £582.3 million. Over forty years, total health benefits will be around £1.6 billion. This takes into account amongst others the effect of hearing protection, noise reduction at source, savings in the medical treatment of hearing loss, etc.

When it comes to the compliance costs with Directive 2003/10/EC, the Directive introduces some new duties on employers as well as ensuring that some existing requirements will have to be fulfilled at lower noise levels. The total compliance costs to UK industry are estimated at: £119.4 million to £201.9 million the first year, £514.2 million to £709.8 million over 10 years, and £1.2 billion to £2.0 billion over 40 years.

Most occupational noise exposure can be minimized by the use of engineering controls to reduce noise at its source. Taking noise into consideration in the design of machinery and processes is the cheapest method to avoid the problem. This is an approach that has been taken by the German Professional Insurance Associations for years as well as by the European Directive 2000/14/EC on noise emission from outdoor equipment which entered into force on 3 January 2002 and will lead to stricter noise emission limits entering into force on 3 January 2006 (ID 4429).

In 2002 we reported:

- **European Union** - Directive on minimum health and safety requirements for noise exposure [ID 4429]
- **Italy** - Adopted new technical guidelines on noise risk assessment at the workplace [ID 5117]
- **Poland** - Ordinance on maximum permissible concentration and intensity of hazardous agents in working environment [ID 2207]
- **Mexico** - Standard on occupational exposure to noise reissued [ID 5110]
- **USA - Issued:** Final rule setting new threshold for recording hearing loss [ID 3871]
- **USA - Proposed:** rule establishing hearing conservation program for construction workers [ID 5468]
- **New Zealand** - Revised code of Practice for the management of workplace noise issued [ID 5442]

On the web

US – OSHA Page on Noise & Hearing Conservation

www.osha.gov/SLTC/noisehearingconservation/

Information on occupational noise and hearing conservation of the United States Occupational Safety & Health Administration (OSHA). Provides background information on noise exposure evaluation, noise exposure limits, noise exposure regulations, hearing conservation, etc.

UK – HSE Page on Noise

www.hse.gov.uk/noise/index.htm

Information on occupational noise of the United Kingdom Health & Safety Executive, with free leaflets, hearing loss statistics, reports on noise in various industrial sectors, information from the Engineering Industry Noise Task Group, etc.

AU – Western Australia WorkSafe Page on Noise and vibrations

www.safetyline.wa.gov.au/sub30.htm

Information on occupational noise exposure of WorkSafe Western Australia. Links to information sheets, codes of practice, guidelines, etc.

CA – CCOHS Page on Physical Agents

www.ccohs.ca/oshanswers/phys_agents

Information on occupational noise exposure of the Canadian Centre for Occupational Health and Safety regarding the auditory effects, measurement of noise at the workplace, exposure limits, etc.

International Institute of Noise Control Engineering (I-INCE)

tools.ecn.purdue.edu/%7eiince/intro.htm

The International Institute of Noise Control Engineering (I-INCE) is a worldwide consortium of organizations concerned with noise control, acoustics and vibration. I-INCE is the sponsor of the INTER-NOISE Series of International Congresses on Noise Control Engineering held annually in leading cities of the world. The quarterly magazine Noise/News International is jointly published by I-INCE and the Institute of Noise Control Engineering of the USA (INCE/USA).

Accelerated heartbeat, high blood pressure, gastro-intestinal problems and chronic fatigue, insomnia, nervousness, anxiety and depression can all be symptoms of exposure to high noise levels. Exposure to excessive noise causes hearing problems, stress, poor concentration, productivity losses in the workplace, communication difficulties, fatigue from lack of sleep, and a loss of psychological well-being.