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HEALTH AND SAFETY COMMISSION

Proposed Physical Agents (Optical Radiation) Directive

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Issue

1. The Irish Presidency of the European Union developed a proposal for a Physical Agents (Optical Radiation) Directive and planned to present it to the Social Questions Working Group on 29 June 2004. Other Council business forced a cancellation of the meeting and the Netherlands Presidency will now present the proposal. The Commission needs to advise Ministers on a negotiating line.

Timing

2. Urgent. The first meeting of the Council Working Group took place on 19 July.

Recommendation

3. That the Commission agree a broad negotiating line for submission to Ministers

Background

Physical Agents Directive

4. In April 1993 the European Commission published a proposal for a Directive on the minimum health and safety requirements regarding the exposure of workers to the risks

arising from Physical Agents. A revised proposal was published in August 1994 to take account of European Parliament amendments.

5. The proposal set out a framework of harmonised requirements with specific provision in separate annexes for noise, vibration (hand-arm and whole body), optical radiation and electromagnetic fields. Other agents could be added later. The annexes laid down a series of levels of exposure above which action had to be taken by employers, including risk assessment, measurement, preventive and control programmes, provision of personal protective equipment and health surveillance.

6. In 1993 the Commission advised Ministers that the proposed Directive was not necessary and should be withdrawn by the European Commission pending further study of its impact. Failing this, the scope of the proposal should be restricted to vibration and preferably to hand-arm vibration. Ministers accepted the Commission's advice (paper HSC/93/74).

7. The proposal was presented to the Council Social Questions Working Group in 1994 and the UK was not alone in opposing it. Although Member States' views of the proposal diverged, there was far from universal support for it with some opposing certain parts of the proposal and others its presentation and scope.

Vibration Directive

8. As a result there was no further formal activity on the proposal until 1999 when the German Presidency suggested that the agents should be taken sequentially in separate Directives and they put forward a proposal for a vibration Directive. The vibration Directive has now been adopted and we have consulted on implementation that has to be achieved by July 2005. We will shortly be advising the Commission of the results of the consultation.

Noise Directive.

9. The Swedish Presidency then introduced a proposal for a noise Directive in January 2001. The Directive has now been adopted and we have consulted on implementation that has to be achieved by February 2006. We will be advising the Commission towards the end of the year of the results of consultation.

Electromagnetic Fields Directive

10. The Danish Presidency introduced a proposal for an electromagnetic fields Directive in December 2002. This was adopted in April 2004 and has to be implemented by spring 2008. We will advise the Commission shortly of our plans for implementation.

Optical Radiation Directive

11. The Netherlands Presidency has now introduced a proposal on optical radiation that is the last of the physical agents Directives (attached at Annex A)

Optical Radiation

12. What is optical radiation?

Optical radiation is another term for light. It includes ultraviolet (UV) radiation, visible light, infrared radiation and lasers.

Radiation is transmitted in waves. All types of radiation can be identified along the electromagnetic spectrum according to the length of the wave. As the wavelength increases, the frequency of the waves decreases.

Optical radiation, a non-ionising radiation, occupies the electromagnetic spectrum at wavelengths between one ten millionth of a metre (100 nanometres or nm) and one thousandth of a metre (mm).

Normally light is emitted from a source at many wavelengths in all directions. This is known as “non-coherent” light. But light can also be concentrated in a beam of a single wavelength in the form of a laser. This is known as “coherent” light.

13. Where does optical radiation occur?

Some examples of where optical radiation occurs at work are:

At work:

Infrared radiation will be present in the molten metal and glass manufacturing industry; UV radiation sources are used in ink drying equipment and other so-called curing type processes;

Lasers are used in a range of applications from etching and welding metals to removing diseased tissue and treating various eye conditions. Barcode readers use low powered lasers;

Outdoor workers are exposed to UV radiation from the sun.

14. Can optical radiation be a hazard to people?

Yes it can but the risk depends on the type of radiation and the intensity as well as the part of the body that is exposed. The greatest risks are from UV radiation and powerful lasers.

The main source of exposure to UV radiation is the sun. Whilst exposure to the sun is usually a matter of personal choice, it can be an issue for some people who work outdoors. But some industrial sources of UV have the potential for significant exposure.

The major risk from lasers is an uncontrolled exposure to a powerful laser due to an incident or other unexpected event. Lasers are classified according to their power and low powered devices such as those used in barcode readers do not pose any harm.

15. What are the symptoms of acute exposure?

There are well defined symptoms of over exposure and these vary according to the source of the optical radiation. The eyes and the skin are the areas of the body most at risk.

For example, in the case of the eye;

UV radiation can damage the cornea and produce pain and symptoms similar to that of sand in the eye;

UV and infrared radiation can produce cataracts;

Powerful lasers can cause serious eye damage, including blindness.

In the case of the skin:

UV radiation can cause redness, burning, blistering, premature skin ageing and an increased risk of skin cancer;

Powerful lasers can cause skin burns.

The well established acute effects should not occur in people during their day-to-day work because artificial sources of optical radiation are shielded to prevent undue exposure. For example, infrared cataract is a condition that is confined to history. However, people who work outdoors can experience the effects of too much sun on their bodies if they are reluctant to take sensible precautions and avoid undue exposure.

16. What legislation is there to control exposure?

There is no UK legislation specific to optical radiation. The general duties to assess and control risks contained in the Health and Safety at Work etc Act 1974 and the Management of Health and Safety at Work Regulations 1999 apply. In general though, control is exercised by compliance with international and national guidelines.

17. What are these guidelines?

The main international guidelines are those published by the International Commission on Non-Ionising Radiation Protection (ICNIRP) and the International Electrotechnical Commission (IEC) for lasers. There is also a British Standard (BS EN 60825) that gives guidance on achieving a good standard of laser safety. The guidelines set exposure limits designed to protect people from the well established effects of exposure. This means that the adverse health effects previously described will not occur provided that the appropriate safety precautions are taken and the exposure levels are below the limits in the guidelines. HSE expects dutyholders to comply with these guidelines, except that they cannot readily apply to exposure to UV radiation from the sun. In this case HSE has produced non-binding guidance to employers and workers on ways to reduce exposure.

18. What industries are likely to produce exposure levels that can exceed the limits in the international guidelines?

Any industry that uses or generates an intense source of light has the potential to create optical radiation levels that exceed the guideline limits if control measures fail. Applications include:

High intensity discharge sources used in the curing, printing and drying industry;

Germicidal lamps used for sterilisation;

Glass manufacture;

Iron and steel furnace work;

Work with high powered lasers.

This list is not exhaustive and there may be other processes where there is the potential for workers to be exposed above the international guideline limits.

Exposure limit values for UV radiation relate to artificial sources and can be exceeded by outdoor workers during sunny weather.

The Irish Presidency proposal

19. The proposal (at Annex A) introduces the ICNIRP guidelines within a Directive framework that has similarities with the three previous Directives. It has provisions on risk assessment, control of exposure, health surveillance and information, instruction and training.

Argument

20. → ←

→ ← These paragraphs are being withheld under Exemption 2 of the Code of Practice on Access to Government Information.

Consultation

25. We have advised our database of stakeholders, including appropriate Government Departments, the CBI, the TUC and the Small Business Forum of the proposal and have sought comments.

Presentation

26. Since the Irish text is an amendment to the Commission's 1993 Physical Agents proposal, rather than a new European Commission proposal, it will not be published and will be subject to Council confidentiality requirements. The Commission cannot therefore undertake a formal consultation. Nevertheless, as with the previous Directives, HSE will consult informally and make successive texts available.

Costs and Benefits

27. HSE undertook a cost-benefit analysis of the EC's 1994 amended proposal for the optical radiation element of its Physical Agents Directive. The costs were between £95m and £125m for the first year, and between £305m and £420m over ten years, with ten-year benefits of up to £70m largely as a result of health surveillance for skin cancer. However, the costly elements of that draft have now been removed from the text. A Regulatory Impact Assessment of the new proposal will be produced shortly and the Commission informed.

Financial/Resource Implications for HSE

28. Costs falling to HSE will include:

- Attendance of HSE officials at EU meetings to negotiate the Directive.
- Development of regulations and guidance to implement the Directive if adopted.
- Enforcement of regulations.

These costs have already been incorporated in existing staff and financial allocations.

Environmental Implications

29. The proposed Directive, if adopted, is not expected to have an environmental impact.

Other Implications

30. None

Action

31. The Commission is invited to agree a broad negotiating position. We will submit the Commission's agreed negotiating position on the Directive to Ministers and will keep the Commission informed of subsequent developments.