Artificial Optical Radiation Directive (AORD)

The AORD is due to be implemented into UK law in April 2010 and the HSE are currently consulting on its implementation. All hazardous sources should already have been identified by risk assessments under the Management Regulations. Lasers are already dealt with under the requirements of BS60825. The vast majority of other light sources are known to be safe. Only those sources likely to cause harm need to be identified and appropriate measures taken. These are most likely to be invisible sources (UV and IR) where safety is not afforded by the aversion response.

The safety classification of non-coherent (not laser) sources is defined in BS EN 62471 and based upon maximum accessible emission levels. Four risk groups have been identified with only the highest risk group presenting a significant risk of harm.

Risk Groups

1. Exempt	- no photobiological hazard under foreseeable conditions. E.g. domestic and office lighting, computer monitors, equipment displays and indicator lamps.
2. Risk Group 1	- low risk, limited by normal behavioural limitations on exposure. Safe for most applications – requires prolonged direct ocular exposure to cause discomfort/harm. Some bright light sources such as a torch may fall into this category.
3. Risk Group 2	- moderate risk, but risk limited by aversion response to very bright light sources. Such aversion responses not always applicable especially to invisible sources.
4. Risk Group 3	- high risk group, may pose a risk of harm even from a brief exposure. Training and safety control measures required for any source falling into this risk category. Written schemes of work required to include contingency plans for accidents or incidents. Medical exam required in the event of an accident.

HSE Identified potential hazardous light sources

- Metal working-welding and plasma cutting
- Pharmaceutical and research – UV fluorescence and sterilisation systems
- Hot industries with furnaces
- Printing- UV curing processes
- Motor vehicle repairs – UV curing processes
- Medical and cosmetic treatments

HSE Identified safe light sources

- All forms of ceiling mounted lighting in offices
- Compact fluorescent lamps and tungsten halogen lamps >60cm from user
- All forms of task lighting (includes desk lamps etc)
- Photocopiers
- Computer type displays
- Photographic flashlamps
- Gas-fired overhead heaters
- Vehicle lights other than headlights

HSE Identified light sources where aversion response should ensure safety but staring at for long periods or being in close proximity could be a problem

- High pressure mercury floodlights
- Desktop projectors
- Interactive whiteboards
- Vehicle headlights
- Medical theatre and task lights including foetal transilluminators and x-ray viewing boxes
- UV insect traps
- Spotlights, effect lighting and flashlamps used in entertainment

The above lists are not exhaustive but give a good guide as to what to look out for. Precautions should already be taken for all the identified hazardous situations e.g. welders goggles, visors and gloves for welding (adventitious UV) and hot metal work, visors for UV work .

What should we currently be doing?

- Using an alternative safer light source if possible, e.g. non-UV transilluminators
- Controlling access by engineering controls and design features of equipment e.g. interlocked screening
- Restrict access to hazardous areas to trained, authorised personnel only
- Increase distance between staff and harmful source
- Issue PPE e.g. goggles or face visors
- Ensure safe systems of work are in place and that workers involved have received suitable and sufficient information and training
- Have documented risk assessments for Risk Group 3 sources – these should have been included in existing workplace risk assessments
- Have a procedure for effectively dealing with accidents.

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