LEAFLET 49

RESPIRATORY PROTECTIVE EQUIPMENT

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LEAFLET FOR LINE MANAGERS

INTRODUCTION

1 The health of employees may be significantly damaged if they breathe in hazardous dusts, fumes, vapours, gases and even micro organisms, which are present in the workplace. The Control of Substances Hazardous to Health Regulations requires that wherever it is reasonably practicable, employers are to eliminate hazardous substances from workplace processes. This can be achieved by substituting less harmful products. Where substitution cannot be achieved, employers are to introduce control measures to prevent hazardous substances entering the atmosphere of the work area. Finally, if with control measures in place, a risk to health still exists, Respiratory Protective Equipment (RPE), as a last resort, is to be used to reduce it to an acceptable level.

2 The aim of this leaflet is to advise line managers on the health and safety requirements associated with the provision, use, maintenance and storage of RPE.

GROUPS OF RPE

3 RPE is summarised under two major groupings as follows:

3.1 Equipment, which filters or cleans contaminated air from the work area before it is inhaled. It includes:

3.1.1 Simple Filtering Respirators:

3.1.1.1 Disposable filtering face pieces.

3.1.1.2 Half-mask plus filters.

3.1.1.3 Full facemasks plus filters.

3.1.2 Powered Respirators:

3.1.2.1 Half-masks.

3.1.2.2 Full facemasks.

3.1.2.3 Hoods and helmets.

3.1.2.4 Blouses (half suits).

3.2 Equipment that provides uncontaminated air for breathing from an independent source. It includes:

3.2.1 Simple Compressed-Air Supplied Equipment:

3.2.1.1 Blouses.

3.2.1.2 Hoods, helmets and visors.

3.2.1.3 Half-masks.

3.2.1.4 Constant flow.

3.2.2 Fresh Air Hose Equipment:

3.2.2.1 Unassisted.

3.2.2.2 Manually assisted.

3.2.2.3 Power assisted.

3.2.3 Breathing Apparatus:

3.2.3.1 Compressed air-line apparatus, either the demand type or the demand type with positive pressure.

3.2.3.2 Self-contained breathing apparatus, either open-circuit type compressed air or closed circuit type compressed oxygen.

RESPIRATORS FOR DUST/PARTICULATES

4 Dust respirators will give a degree of protection against any solid particulate material. However, the filtration effectiveness will depend on the nature of the material and the size of the particles.

RESPIRATORS FOR GASES AND VAPOURS

5 This type of respirator relies on gas being adsorbed onto the surface of materials such as activated charcoal in a filter cartridge. Different types of adsorbent are required for different gases; any one type will only be effective against a limited range of gases and vapours. The selection procedure is, therefore, to match the type of filter cartridge to the hazardous substance.

COMPRESSED AIR EQUIPMENT

6 Used properly in accordance with manufacturers or Service instructions, this equipment provides a source of clean air for breathing from an independent compressed air supply. The simpler forms, such as visors, will give lower protection than equipment using a hood or a blouse, as the inward leakage of contaminated air will be greater. Although this equipment can be used to provide protection against any form of contaminant, it is not breathing apparatus and does not give sufficiently good protection to allow it to be used where there is an immediate danger to life or health. This would be in circumstances where the wearer would quickly be overcome if unprotected.

NOTE

There is a requirement to ensure that the compressed air supplied to the wearer is maintained to acceptable standards See Leaflet on Compressed Air for RPE.

FRESH AIR HOSE EQUIPMENT

7 Fresh air hose equipment takes air from a clean source near to the contaminated area and delivers it to a face mask or (in the case of assisted types only), a hood. Hoses to fresh air equipment are to be sufficiently strong to withstand rough usage and are to comply with the requirements of the British Standard (BS) 4667, Part 3.

BREATHING APPARATUS

8 Breathing apparatus provides the highest degree of protection. It is designed for use in the most hazardous circumstances, where the atmosphere may be immediately fatal to the unprotected person, or for emergency use by fire brigades, where there is a high risk of being overcome by smoke etc.

COSHH ASSESSMENT

9 No form of RPE will provide 100% protection against exposure to a hazardous substance, as there is always some leakage of contaminated air into the equipment. Hence, selection of RPE is to be made only after a COSHH assessment has been completed, and the following queries answered:

9.1 Is there sufficient oxygen in the atmosphere to breathe?

9.2 Is the contaminant a dust, gas or vapour?

9.3 What is the relevant occupational exposure limit?

9.4 What is the concentration of the contaminant in the atmosphere?

10 Generally, the Environmental Health Officers (EHO) or Occupational Hygienists (OH) would be tasked with conducting the necessary atmospheric sampling checks. When the results of the sampling are known the EHO or OH will then be able to advise the line manager of the area on selection of the most suitable RPE to provide the required protection performance.

PROTECTION PERFORMANCE

11 RPE is to be selected on the basis of its protection performance. When correctly maintained equipment is properly worn by well trained users, protection is achievable near to the levels indicated. To be more certain of obtaining effective protection, higher performance equipment is to be selected, e.g. if the contaminant level identified in the COSHH assessment is 10 times the Occupational Exposure Limit (OEL), and a disposable respirator is considered suitable, a type FFP3 rather than a FFP2 is to be used.

WARNING

MANY TOXIC GASES AND VAPOURS HAVE IMMEDIATE AND ACUTE EFFECTS IF INHALED, EVEN AT QUITE LOW CONCENTRATIONS. WHERE THERE IS ANY DANGER OF RAPID LOSS OF CONSCIOUSNESS OR ASPHYXIATION, ONLY BREATHING APPARATUS IS TO BE USED

PERSONAL AND WORK RELATED FACTORS

12 All types of RPE restrict the wearer to some extent, by imposing extra breathing resistance on the lungs, inhibiting normal voice communication, limiting visibility, restricting mobility or by simply being additional weight to carry around. It is, therefore, important to remember that effective protection will only occur when the following factors have been addressed:

Medical Fitness

13 People with respiratory disorders such as asthma may find difficulty with respirators which rely on lung power to draw air through filters. Line managers are to ascertain that their employees are fit and free from any medical constraints which, if they wore RPE, may endanger their health.

Face Shape and Size

14 A good fit and seal of any face-mask are essential. A poor fit or seal will result in inward leakage and reduced protection. The availability of a range of suitable sizes to meet the individual requirements of employees is essential.

Facial Hair

15 Facial hair and beard stubble will tend to keep the mask off the skin, which will result in a poor seal and an inevitable inward leakage of contaminated air. For employees with facial hair, the use of hoods, visors, blouses or air fed suits is recommended where they are suitable alternatives to equipment relying on a face seal.

Spectacles

16 The side arms of conventional spectacles will interfere with the seal and reduce the protection provided by a full-face mask. Other forms of RPE are to be considered.

Work Related

17 These are the physical effort to do the job, the method of work, and how long the RPE needs to be worn. The aim is to choose equipment which will give minimum discomfort to the wearer, as uncomfortable equipment is unlikely to be worn correctly.

PERSONAL PROTECTIVE EQUIPMENT (PPE) CATALOGUE

18 The PPE Catalogue, JSP 437, has been produced to enable line managers to refer to detailed user data sheets and select suitable PPE, including RPE.

CLASSIFICATION

19 Classification. RPE is classified as follows.

Major

20 All positive and negative pressure full face masks.

Minor

21 All other equipment except disposable filtering facepieces.

Disposable

22 Filtering facepieces used for one shift only.

DUTIES

Line managers

23 Line managers are to ensure that:

23.1 Their employees are informed, instructed and trained appropriately in the use and maintenance of RPE.

23.2 Provide adequate supervision.

23.3 Where a number of items of RPE are worn, to control more than one hazard, they are compatible.

23.4 Provide a maintenance facility which has clean running warm water and a segregated drying area for RPE cleaning and maintenance.

23.5 To arrange for the safe storage of RPE as part of the administrative control of the equipment. The storage is to provide protection from contamination, loss, damage by harmful substances or exposure to damp or sunlight. Serviceable items are to be segregated from equipment awaiting repair or maintenance, and there is to be a sufficient stock of spares.

Employees

24 Employees have a duty to:

24.1 Use any RPE provided for their use, in accordance with the manufacturer's instructions and the training they have received.

24.2 Report any defects to RPE that occur during use to their line manager or RPE maintainer

RELATED PUBLICATIONS

25 Related Publications

- HSE Information. Guidance on RPE published by the HSE is available in HS(G)53
- JSP 437.
- AP119F-1210-1.
- AP119F-1210-2(R).

RELATED LEAFLETS

26 Related leaflets

- Leaflet - Substances Hazardous to Health
- Leaflet - Management of Personal Protective Equipment
- Leaflet - Work in Confined Spaces
- Leaflet - Protection of Persons Using Compressed Air - RPE