PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT (PPE) - SPECIFICATION USE AND MAINTENANCE

1.0 GENERAL

Personal Protective Equipment (PPE) is issued to protect persons from injury or health hazards. It is issued as a last resort when a hazard(s) cannot be minimised / eliminated by other means which would be equally or more effective. It can only be effective when:

- It is suitable for the intended purpose in the intended work environment.
- It takes into account ergonomic considerations and the state of health of the wearer.
- It is a correct fit for the wearer and is correctly worn.
- It is so far as is practicable, effective in preventing or adequately controlling the risks involved.
- It is appropriately accommodated and is maintained in an efficient state, in efficient working order and in good repair.
- It complies with current legislation with respect to its design and manufacture.

The requirement for PPE is identified in the task risk assessment, which also specifies the type(s) of PPE / clothing required for each activity.

Where a PPE requirement is specified in the assessment, it is to be worn by employees at all times when in the hazard area.

Where more than one risk exists simultaneously e.g. noise / dust inhalation, noise / eye injury, noise / head injury then each of the items of PPE supplied to reduce or eliminate each separate risk require to be compatible with each other.

Management are to provide adequate and appropriate information, instruction and training to staff to enable them to make effective use of equipment provided for their protection against workplace hazards. This will include information concerning the risks, which the personal protective equipment will avoid or minimise, the purpose for which and the manner in which the PPE is used and the accommodation and maintenance arrangements put in place for its care.

Information and instruction is not seen as adequate unless it is clearly understood by the recipients.

Personal protective equipment is provided to the employee free of charge. PPE is only to be used for the purpose intended, in accordance with training and instruction received and information provided

Staff have a duty to take all reasonable steps to look after the PPE provided, report any loss or defect and not abuse or misuse the equipment.

2.0 EYE PROTECTION

All eye protection issued must comply with requirements of the appropriate European Standards BS EN 166, 167, 168, 169, 170 and 171.

The requirement for eye protection is identified in the task risk assessment, which also specifies the type(s) of eye protection required for the activity.

- Eye protection must be selected as being fit for a particular purpose e.g. resistant to impact from solids, resistant to dust or vapour, splashes from chemicals and resistant to intense light as with welding goggles Eye protection is available in the form of safety spectacles, goggles, face-visors or shields and also incorporated into types of respiratory equipment.
- Eye protection (welding goggles or visor) must be worn whilst carrying out any welding operation.
- Eye protection must be worn in the vicinity of any activity or process where sparks, dust or flying debris are generated or where there is the potential for them to occur.
- Suitable eye protection must also be worn when handling certain chemical products.
- Eye protection is to be issued on a personal basis and only used by the person to whom it is issued.
- All eye protection equipment must be inspected before use to make sure it is in sound condition and unlikely to fail in use.

Selection of suitable eye protection depends on the hazard. Comfort, style and durability are all important considerations.

2.1 Safety Spectacles

These are similar to ordinary prescription spectacles but usually incorporate side shields to give lateral protection to the eyes. Lenses can made with tough optical quality plastic to protect against impact. Safety spectacles are generally light in weight and are offered in various styles, many types have adjustable side arms. Prescription safety spectacles are available for specific needs.

2.2 Eye Shields

Are similar to safety spectacles but are usually heavier. Vision correction is not possible as lenses are not generally interchangeable. Some eye-shields can be worn over prescription spectacles.

2.3 Safety Goggles

Heavier and less convenient or comfortable to wear than spectacles or eye-shields, they are generally flexible, of one-piece construction, fitted with an elastic headband and afford the eyes total protection from all angles. Safety

goggles are available as directly ventilated and indirectly ventilated versions. Goggles are prone to misting up.

2.4 Face Shields

Heavier and bulkier than other eye protection equipment face-shields protect the face and eyes but do not fully enclose them. The protection may be worn over prescription spectacles and does not mist up.

2.5 Maintenance

- The lense(s) should not show scratches or signs of abrasion nor indentation: it should not be discoloured and should be securely fixed in place.
- Spectacle frames should be undistorted and undamaged and capable of being adjusted to give a good fit. Side arms, where adjustable, should remain easily adjustable and should open and close freely. The hinge mechanism between frame front and side arm should not have deteriorated to cause excessive slackness and side shields, if fitted, should be secure and undamaged.
- Headbands should be easily adjustable with elastic in good condition.
- Goggle housings should be undistorted and undamaged.
- Cleaning should follow manufacturer's instructions. Generally a non-abrasive detergent, warm water and a soft cloth may be used to clean the eye protector. Thoroughly rinse the eye protector, and then dry.
- Some chemical cleaning materials can affect the mechanical properties of the material(s) from which the eye protector(s) is constructed. If any doubt exists on the cleaning material to be used, the manufacturer should be consulted.
- Before issue, eye protectors should be stored in the manufacturers or supplier's packaging to protect against dirt, oil, sunlight, extreme heat or cold, excessive moisture and harmful chemicals. They should be stored to avoid distortion.
- After issue, eye protectors when not being worn are to be stored preferably in a spectacle case designed for the protector (note that a plastic bag will give effective protection to goggles and face-shields).
- Eye protectors should never be placed lens down.

3.0 CLOTHING ISSUED FOR PROTECTION AGAINST CHEMICAL HAZARDS

The requirement for clothing to be used for protection against chemicals and hazardous substances is identified in the task risk assessment, (COSHH assessment) which also specifies the type(s) of protective clothing required for the specific activity.

Protective clothing for use must be selected as being fit for the intended purpose giving adequate protection from the chemical substances or other hazardous materials in use.

- **Low risk chemicals**. Chemical resistant clothing, coveralls made from uncoated cotton or synthetic materials.
- **Strong solvents oils and greases** require heavier protection afforded by coats, overalls and aprons made from neoprene or polypropylene coated nylon or Terylene or rubber aprons.
- **Chemical Suits**. Offer protection against more potent chemicals. They are totally encapsulating suits which are either vapour-proof or liquid splash-proof, they may have hoods which are fed with breathable air.
- **Vapour suits** Offer protection against hazardous vapours and are made from PVC, Butyl or other synthetic material. They require regular visual inspection and air testing to identify any defects.
- **Suits offering protection from fibres and dust** are made from specialised synthetic materials designed to keep out particulates and fibre.
- Some protective overalls / coveralls for protection against fibres and dust are designed as a single use garment to be disposed of following use.

4.0 PROTECTIVE CLOTHING FOR THE BODY

The requirement for protective clothing is identified in the task risk assessment, which also specifies the type(s) of protective clothing required for the activity.

Clothing used for body protection is dependant on the type of activity undertaken but may include any of the following:

- Outfits to protect against cold, heat. Made from a wide range of materials for all applications Cold-store clothing available to minus 25 and minus 50. Specialist firefighting and foundry clothing for high temperature work.
- Foul weather clothing PVC coated cotton or nylon, waxed fabrics.
- Clothing to protect against machinery such as chain-saws. Specialist synthetic materials are used for purpose made garments.
- High visibility clothing. Essential for work on or near roadways or railway lines.
- Life-jackets and buoyancy aids. Essential where there is a foreseeable risk of drowning when working on or near water.
- The following are examples of the types of activities or processes that require protective clothing.

- Construction work, site inspection work, outdoor work.
- Work in cold stores.
- Forestry work using chainsaws, clearing saws.
- Food processing.
- Hospital and Nursing Homes work.
- Chemical plants.
- Firefighting.

4.1 Inspection of protective clothing:

- Garments should be inspected on receipt, before and after use, after repair and cleaning. A competent person should check that the garment is correctly identified and that it has no sign of damage or contamination (e.g. pinholes, abrasions or cuts, softening or cracking of protective surfaces, discoloration, damage to fastenings or valves, or lifting of seams or welds).
- Adequate space should be provided for storage in a dry, well-ventilated area, maintained at a moderate temperature.
- Protective clothing should be stored separately from personal clothing and chemicals and away from bright sunlight and from any equipment likely to produce ultraviolet radiation or ozone that might degrade it. Garments should be stored neatly, as far as possible free from creases or other types of distortion that could cause cracking.
- Garments of different types and construction should be kept away from each other to avoid confusion. New garments should be kept separate from used ones.
- Persons using the clothing should inspect it for possible damage or contamination before putting it on. Correct closure of all seals and fastenings should be checked.
- It is possible for clothing to be weakened by spilt chemicals over a period of time. Therefore, garments should be decontaminated immediately after use and before removal if this can be done without risk to the user.

Protective clothing is not to be worn in areas where food and drink are consumed.

5.0 NOISE AND EAR PROTECTION

The requirement for hearing protection is identified in the task risk assessment, which where necessary will also specify the type(s) of hearing protection required for the activity. The findings of the assessment may indicate that noise levels are likely to be at or exceed the first action level of 80dB(A) or a peak sound pressure of 135 dB(C) possibly extending to the second action level of 85dB(A) or a peak sound pressure of 137dB(C) for a daily personal noise exposure. In these circumstances there is a need for a separate noise assessment to be carried out by a competent person. This will enable a more detailed specification to be made for remedial action, including recommendations for specific types of hearing protection.

The Control of Noise at Work Regulations 2005 obliges employers to assess noise levels, introduce noise control measures, inform workers about risks to hearing, make ear protection available and ensure its use at noise levels at or above the second action level.

- Exposure to loud noise can cause permanent hearing loss. It is difficult to detect as it happens slowly and progressively over months and years.
- Permanent hearing loss is caused by prolonged exposure to high levels of noise; the length of time needed to cause damage is related to actual noise levels (see table below).
- Permanent hearing loss may also be caused by sudden, short, intense levels of noise, generally those where peak sound pressure is at or above 137dB(C) e.g. gunfire, use of cartridge tools.
- Excessive noise may also contribute to other accidents by hindering the good communication essential to safety at work.
- Noise also contributes to increasing fatigue and irritability, reducing concentration, and these can again increase the risk of other accidents.
- In the working environment noise is potentially most dangerous to the operator of the particular machine he is operating. However, it is also hazardous to other workers nearby also third parties if the noise level is particularly high or prolonged, as in building work on one floor of an occupied multi-storey building for example.

As a rough guide an assessment of daily personal exposure $L_{EP,\,d}$ will usually be needed wherever people have to shout or have difficulty being heard clearly by someone about 2 metres away, or they find it difficult to talk to each other. Where there is any doubt noise measurements should be taken.

5.1 Noise Measurement

Noise is measured in “A” weighted decibels. [dB(A)] is used to assess a hearing hazard. 80dB(A) is the limit for regular, daily exposures of eight hours, each increase of the noise level by 3dB(A) doubles the previous noise level.

Peak sound pressure at or above 135 dB(C) requires actions equivalent to those taken above the 80dB(A) for continuous noise.

Where any employee is likely to be exposed to noise at the first action level or above in circumstances where the daily personal exposure is likely to be 80dB(A) or peak sound pressure of 135dB(A) the employee is to be provided at his request with suitable and efficient hearing protectors.

Where exposure to noise is to the second action level of 85dB(A) or a peak sound pressure of 137dB(C) the employee must be provided with suitable hearing protectors capable of reducing the noise to or below the first action level.

The exposure limit value of 87dB(A) or peak sound pressure of 140dB(C) at the wearer’s ear is the value never to be exceeded.

At or above the second action level the employer must ensure that employees wear ear protection whilst in the noise hazard areas; employees have a duty to wear the protection.

It is essential that ear protectors are worn correctly all the time the user is in a noise hazard zone. Noise hazard areas will be identified using appropriate signage.

In particularly noisy environments where it is not possible to use further engineering or technical measures to reduce noise disposable ear plugs in addition to ear protectors may be required. Issues of hygiene will need to be addressed.

Ear protectors are to be inspected for any signs of damage or deterioration before and after use. The method of checking is:

- Outer shells should be examined for any signs of cracking or discoloration.
- Ear cushions should be examined for deterioration, splits, and holes. They must fit tight on to the outer shell and show no signs of slipping.
- The baffling material inside the shell should be examined for any signs of deterioration and must completely cover the inside of the shell.
- The headband should be easily adjustable. The hinges must be securely attached to the outer shell.
- The headband tension should hold the shells firmly against the sides of the head.

6.0 PROTECTIVE HEADWARE

The requirement for protective headwear is identified in the task risk assessment, which also specifies the type(s) of protective headwear required for the specific activity. There are four widely used types of head protection:

1) Crash helmets, cycling helmets, riding helmets and climbing helmets, which are intended to protect the user in falls.
2) Industrial safety helmets which can protect against falling objects or impact with fixed objects.
3) Industrial scalp protectors (bump caps) which can protect against scalping / entanglement, and
4) Caps, hairnets etc. that can protect against scalping / entanglement.

6.1 Selection of suitable Head Protection

To fit, head protection should:

- Be of an appropriate shell size for the wearer.
- Have an easily adjustable headband, nape and chinstrap.
- The range of sizes and adjustments should be large enough to accommodate any thermal lining required in winter.
- Head protection should be as comfortable as possible for the wearer.

Comfort can be improved by:

- Provision of a flexible headband suitably wide and contoured both vertically and horizontally to fit the forehead.
- An absorbent, easily cleanable or replaceable sweatband.
- Textile cradle straps

Chin straps which, when fitted:

- Do not cross the ears.
- Are compatible with any other PPE needed.
- Are fitted with smooth, quick release buckles which do not dig into the skin.
- Are made from non-irritant materials.
- Can be stowed on the helmet when not in use.

Head protection should be suitable for the intended use and not hinder the work being done

If other PPE, such as ear defenders or eye protection is to be used, the items should be compatible allowing them to be worn in safety and comfort.

6.2 Maintenance

Head protection must be maintained in good condition.

- The date of issue to the user is to be marked on the label inside the helmet. The helmet is to be replaced every 2 years (for high usage) or 5 years (for low usage) irrespective of the appearance or condition.
- It should be visually inspected regularly for signs of damage or deterioration.
- The sweatband requires regular cleaning or replacement.
- Check the head protection regularly for cracks, discoloration or any other signs of damage. If any fault is found, the helmet is to be replaced.
- If the helmet is struck by a falling object or otherwise suffers a heavy impact, it is to be replaced.
- The helmet must not be painted nor have adhesive stickers applied. Do not leave it in strong sunlight or the back window of a car.
- Cleaning should be carried out with soap and warm water. Do not use strong detergents or other chemical cleaning agents.

7.0 SAFETY FOOTWEAR

The requirement for protective footwear is identified in the task risk assessment, which also specifies the type(s) of protective footwear required for the specific activity.

The selection of foot protection depends primarily on the hazard however comfort, style and durability must also be considered. The choice will be made

on the basis of suitability for protection, compatibility with the work and the requirements of the user.

Generally safety footwear should be flexible, wet resistant and absorb perspiration. Boots rather than shoes are to be used where ankles need protection. The ability of footwear to resist corrosion abrasion and industrial wear and tear should always be a consideration.

Manufacturer's instructions should be followed and markings depicting appropriate use and levels of protection should be observed. The following types of footwear may be used:

- Safety boot or shoe – normally with steel toecaps but may have additional features (steel midsoles, slip resistant, chemical resistant).
- Anti-static and conductive footwear are used as protection for electrical hazards, the latter used in the electronics industry where the wearer handles sensitive components that could be damaged by static electricity.
- Heart resistant – normally leather or wood (clogs) or other heat resistant materials
- Water resistant - Wellington boots used mainly on muddy sites.
- PVC waterproof footwear - is used extensively in the food processing industry, chemical industry, hospitals etc.

Safety footwear as with other PPE is to be maintained in good condition, checked regularly and discarded where worn and deteriorated.

8.0 HAND AND ARM PROTECTION

The requirement for hand and arm protection is identified in the task risk assessment, which also specifies the type(s) of hand and arm protection required for the specific activity.

The selection of hand and arm protection depends primarily on the hazard however comfort, style and durability must also be considered. The choice will be made on the basis of suitability for protection, compatibility with the work and the requirements of the user.

The types of activity for which hand and arm protection may be required include:

8.1 Manual Handling

Where hands may be damaged by abrasive, sharp or pointed items or damaged by impact when handling goods

8.2 Vibration

Hands must be kept warm during cold weather when operating equipment that causes vibrations. Vibration white finger occurs more frequently and more severely when the hands are cold.

8.3 Construction and outside work

Manual dexterity is lost when the hands are cold which can lead to accidents when things are dropped. Gloves also protect against disease spores, which may affect small cuts and abrasions.

8.4 Handling of hot and cold materials

Work ranging from welding and foundry work to work in a cold store.

8.5 Electrical hazards

Danger from electric shock.

8.6 Chemical hazards

Hands require protection against contamination, toxic or corrosive chemicals, substances that can be absorbed through the skin.

8.7 Radioactivity

Danger from contamination.

8.8 Clinical hazards

Danger from skin contamination from biological agents.

8.9 Selection of suitable hand protection

Gloves and other hand protection should be capable of giving protection from hazards, be comfortable and fit the wearer. The selection of hand and arm protection depends primarily on the hazard however comfort, style and durability must also be considered. The choice will be made on the basis of suitability for protection, compatibility with the work and the requirements of the user.

Penetration and abrasion: Leather and knitted Kevlar give good protection. Kevlar needlefelt offers good puncture resistance.

Thermal Protection: Many material types are available for various applications.

Fire Resistance: Chromed leather gloves are fire resistant.

Chemicals: Many material types available for various applications including natural rubber, neoprene, nitrile, butyl, PVA, PVC and Viton.

General use: Rubber, plastic, leather, cotton or other knit fabric.

Maintenance: As with all PPE gloves should be maintained in good condition. They should be checked regularly and discarded if deteriorated or worn.

Gloves should be kept free of holes, cuts or tears and maintained in a clean condition. Cleaning should be undertaken according to the manufacturer's instructions.