



CARE GUIDANCE

RECOMMENDATIONS ON BEST PRACTICE

LEVEL 2

Use of Personal Protective Equipment (PPE)



USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

INTRODUCTION

This is a level 2 document in the ECFIA CARE Guidance series and should be read in conjunction with the level 1 document "Working with HTIW – Effective Risk Management".

There are a number of situations in which it can be envisaged that there would be a need for PPE in addition to or instead of other control measures. This document details the various types of PPE and discusses different options, particularly in regard to respiratory protection.

WHAT IS THE CARE PROGRAMME?

ECFIA's Controlled And Reduced Exposure (CARE) Programme is an important part of the Product Stewardship Programme. It allows employers to proactively minimize fibrous dust exposure and thus protect workers' health.

WHAT ARE THE CARE GUIDANCE DOCUMENTS?

These documents form a comprehensive library of information on the safe handling and use of HTIW products. They have been written by industry experts and are designed to give customers of ECFIA members helpful information to put in place effective controls to minimise exposure to airborne fibres. This series of documents will progressively grow as new documents are produced.

Level 1 guidance document: "Working with HTIW - Effective risk management"

Level 2 guidance documents: Risk management measures applicable to HTIW

Level 3 guidance documents: Examples of specific applications

IN-PLANT SITUATION

In areas where it is not possible to employ effective control measures, or in situations where excursions above applicable OEL's may occur, personal protective equipment must be used. To ensure the appropriateness of any PPE programme, a full risk assessment of each individual task should be done prior to implementation.

Typically PPE will be needed where it is not possible to reduce emissions effectively, or where there is a degree of uncertainty about exposure levels; for example:

- Where short term, intermittent operations involving HTIW products are being carried out
- Where new or altered processes are being trialled and it is not known how effective the control measures are
- Where there has been equipment malfunction and fibrous dust levels in the workplace are higher than normal.

RISK MANAGEMENT MEASURE/APPLICATION



PPE typically falls into four main categories; skin protection, eye protection, impact protection and respiratory protection.

As the main route of exposure to fibrous dust is via inhalation, the main focus of this document is on respiratory protection; however, skin, head, foot and eye protection may also be necessary in industrial and/or high dust environments to protect against other industrial hazards and prevent or minimise mechanical irritation from the fibrous dust.

RESPIRATORY PROTECTION

When selecting the correct type of respiratory protection it is important to consider the following factors:

- Duration of exposure
- Level of fibrous dust in the air
- Frequency of exposure
- Other contaminants in the air

There are two main groups of respiratory protective equipment (RPE):

1. **Unpowered Respirators** (masks) that passively filter contaminants from the air
2. **Powered Respirators** that provide a pumped supply of filtered air.



Respirators are available with a range of protection levels so care must be taken to ensure that the protection provided is adequate for the job at hand. In addition, it may occasionally be necessary to use full breathing apparatus.

Generally, for low to moderate levels of fibrous dust a well fitted passive respirator is sufficient to remove contaminants and prevent them entering the worker's airways. The exact RPE selected will vary but is typically a half-face respirator with changeable filter cartridges.

For very high levels of fibrous dust, such as those typically seen during removal operations, air supplied respiratory protection may provide a more appropriate level of protection.

The appropriate duration for wearing the chosen mask shall be determined taking into account the individual's health condition as well as the general working conditions, including the climate in the surrounding environment (temperature, humidity etc.).

When selecting RPE it is important to ensure that a good fit is achieved on the individual wearer so that the RPE gives the intended level of protection. Particular care must be taken when selecting RPE for people who wear glasses, have beards or have unusual face shapes. If eye protection is necessary then a respirator that also incorporates eye protection should be considered. Workers should be medically fit to wear a respirator and existing medical conditions must be taken into account.

All types of RPE should be fit-tested prior to use, and a medical surveillance programme should be put into place for those workers who have to wear respirators on a regular basis. Special care should be taken with those workers who have a history of cardiac or respiratory problems, as the wrong type of mask could have a detrimental effect on their health.

European harmonised standards for respiratory protective equipment have been developed as a means of demonstrating equipment conformity with the basic health and safety requirements of the EC Personal Protective Equipment Directive (89/686/EEC). Only equipment which meets these requirements is entitled to carry the mark and be sold for use in the EC.

**Useful links:**

BGR/DUV-R 190 recommendation for the use of PPE (in German)

<https://publikationen.dguv.de/dguv/pdf/10002/r-190.pdf>

INRS PPE respiratory protection (in French)

<http://www.inrs.fr/accueil/demarche/savoir-faire/protection-individuelle/respiratoire.html>

RPE should be fit-tested prior to use. As with all PPE it is important that workers receive thorough training on how to correctly wear and maintain the RPE they are using. An incorrectly fitted mask will provide ineffective protection against harmful agents. Fit-testing advice can be found on HSE website: <http://www.hse.gov.uk/respiratory-protective-equipment> or from mask suppliers.

SKIN PROTECTION

It is recommended that skin protection takes the form of gloves and overalls with loose fitting collar and cuffs. This protects the skin while preventing the build up of fibrous dust at the neck and wrists which could otherwise lead to discomfort due to mechanical irritation.

As with all PPE, care should be taken to ensure that the materials used in the protective equipment/clothing are compatible with the operating conditions and with any other substances used during the operation, e.g. heat resistant materials must be used in high temperature environments.

Cleaning of protective clothing (e.g. overalls) should be undertaken by the employer, either on site or by a specialised cleaning service. Work clothes should not be laundered at home. If a laundering service is unavailable, workers should wear suitable disposable overalls. As with all other protective equipment, non-disposable overalls must be properly maintained as otherwise they may become ineffective.

EYE PROTECTION

The main reason for using eye PPE is to prevent fibrous dust entering the eyes and causing irritation. It should be close fitting and abrasion resistant. Care must be taken to ensure that the use of eye protection does not negatively impact the effectiveness of any respiratory protection that is required.

Where used, eye protection should conform to European standards, and should be kept clean and scratch free so as to avoid impairment of vision. If a dust mask is worn over eye PPE then care should be taken to ensure the eye PPE does not steam up causing further possible health and safety issues.

OTHER PPE

Depending on the circumstances, other personal protective equipment may be required, as detailed below.

Head Protection

Head protection may be required in areas where there is a danger of falling objects or where low level fixed objects are present. The type of head protection must be adequate for the hazards identified and will typically be either a hard hat or a bump cap.

**DOCUMENT LEVEL 2****Foot Protection**

Foot protection should be used where there is the possibility of objects falling on and crushing feet or toes, or where there is the danger of slips, trips or falls. The type of footwear needed will vary depending on the hazard identified, but care should be taken to ensure that it is comfortable and is regularly inspected for damage.

Hearing Protection

Depending on the noise levels at the specific workstations, hearing protection (e.g. ear plugs, ear muffs) may be required.

All workers should be trained in the correct use and maintenance of all PPE used. Care must be taken to ensure that all types of PPE worn are compatible with each other and suitable for the task at hand. Unsuitable PPE can be more a hindrance than a help.

MAINTENANCE AND STORAGE OF PPE

Disposable PPE should be single use only, as once removed it will lose its effectiveness. Multi-use PPE should be personal-issue, for hygiene reasons. Exceptions to this are visitors' lab coats, which are regularly laundered, and safety spectacles, which are not a hygiene concern.

Reusable respirators should be cleaned using a mild detergent (with warm water and a soft brush) on a regular basis. Once washed, the mask should be disinfected and allowed to dry. All PPE should be checked before and after use for signs of damage. Damaged PPE must be disposed of and replaced, as it may not provide effective protection. Filters on respirators must be replaced if damaged or if breathing becomes affected.

PPE should be stored in a clean, dry area as close as possible to the factory area and away from any sources of contamination.

SUMMARY

This level 2 guidance document provides a general overview of PPE options that can be considered when handling products that may generate fibrous dust. Before deciding on the correct PPE for a given situation advice should be sought from PPE providers and/or experienced Occupational Hygienists.

It must be remembered that PPE is normally considered a 'last resort' when it is not practical or possible to implement other exposure control measures.



FURTHER INFORMATION

Occupational hygiene

A source of expertise including people with a wide range of the skills and competencies necessary to develop effective exposure control measures and test their effectiveness is the Faculty of the British Occupational Hygiene Society (FBOHS) (free) Directory of Members. <http://www.bohs.org>

HSE Personal Protective Equipment at Work (second edition)

<http://www.hse.gov.uk/pubns/priced/l25.pdf>

Respiratory Protective Equipment at Work (HSE Guidance document HSG53)

<http://www.hse.gov.uk/pubns/books/hsg53.htm>