



## Selection of respiratory protective equipment suitable for use with wood dust

### Woodworking Sheet No 14

#### Introduction

This information sheet is one of a series prepared by HSE's Woodworking National Interest Group. Its purpose is to advise employers on the selection of respiratory protective equipment (RPE) for use with wood dust, both hardwood and softwood. All wood dust (including dust from composites like chipboards and fibre boards etc) is hazardous to health: it can affect the nose, the respiratory system and the skin.<sup>1</sup>

Dust respirators will give no protection at all against gases and vapours (eg from paint spraying).<sup>2</sup>

The Control of Substances Hazardous to Health (COSHH) Regulations 2002 require employers to assess the health risks and precautions needed to prevent or control exposure to hazardous substances such as wood dust. The first priority should always be to prevent exposure or, if this is not possible, to control it at source, for example by effective local exhaust ventilation.

RPE is no substitute for effective control of dust at source.

Personal protection (such as protective clothing and respirators) may be needed as an interim measure where engineering controls are being developed and/or modified and for short-term jobs such as cleaning and maintenance. Engineering controls protect everyone in the workplace; personal protective equipment can only help the person who wears it.

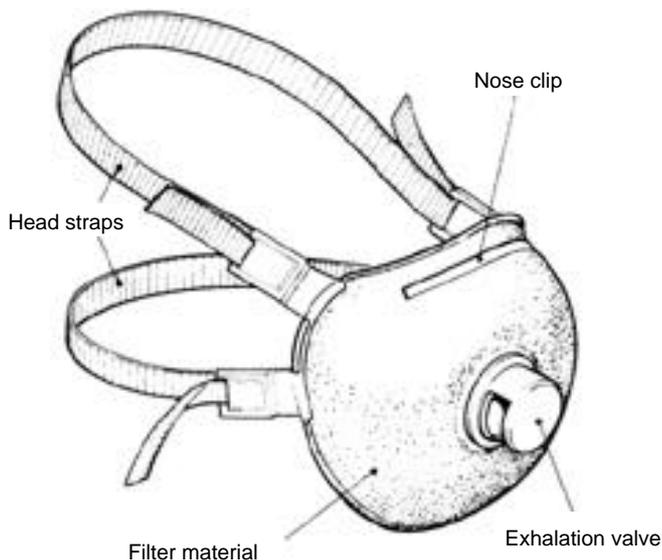


Figure 1 Disposable filtering facepiece respirator

Dust respirators filter the air breathed by the wearer in order to make it safe to breathe and are not suitable for use in situations where the amount of oxygen in the air may be deficient, eg in confined spaces. These situations require breathing apparatus which provides air from an independent source (eg a cylinder).

#### Selection

RPE used to protect against wood dust must meet two basic requirements:

- 1 The RPE must be suitable for the purpose for which it is used. This means that it must provide effective protection to the wearer in the circumstances in which it is worn. It must be capable of providing a sufficient quantity of clean air for the wearer to breathe, it must fit the wearer and the wearer must use it properly in accordance with the manufacturer's instructions. If the respirator is not a disposable 'one shift' type, it must also be cleaned daily and maintained in accordance with the manufacturer's instructions.<sup>3</sup>
- 2 RPE must be CE marked. You may have some equipment manufactured before 1 July 1995 that is not CE marked - it should have Health and Safety Executive approval (see reference 4). Such equipment can continue to be used as long as it is suitable (see paragraph 1 above) and well maintained.

Table 1 is designed to help those in woodworking to select suitable dust respirators. Only the most common types used in woodworking are included, ie the disposable respirator, the half- and full-mask dust respirators and lightweight powered visors and helmets. This does not mean that other types are not suitable, and guidance on their selection can be found in *Respiratory protective equipment: A practical guide*.<sup>2</sup>

There are some simple masks, known as nuisance dust masks, which do not give any reliable protection against substances hazardous to health. These should not be used with wood dust.

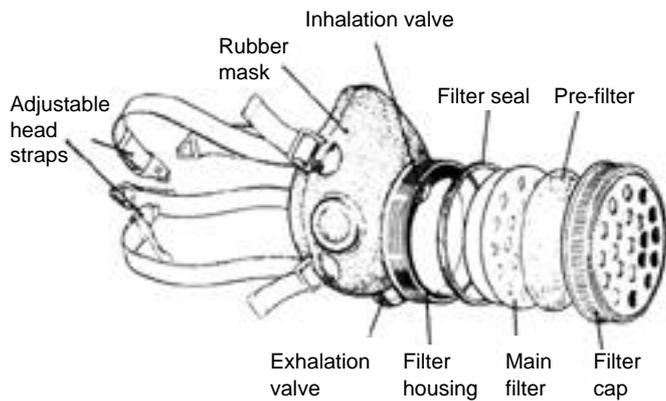


Figure 2 Half-mask respirator

### Personal and work-related factors in selection of RPE

All types of RPE restrict the wearer to some extent, by imposing extra breathing resistance on the lungs and by restricting visibility or mobility. These restrictions underline the need to control exposures by other means wherever possible. It is also important to remember that effective protection is only given when equipment which is of the **right standard** and in **good condition** is **properly fitted and used**. Removal of the RPE, even for short periods, dramatically reduces the level of protection afforded to the wearer.

A respirator which is not worn or is hung around the neck gives no protection at all.

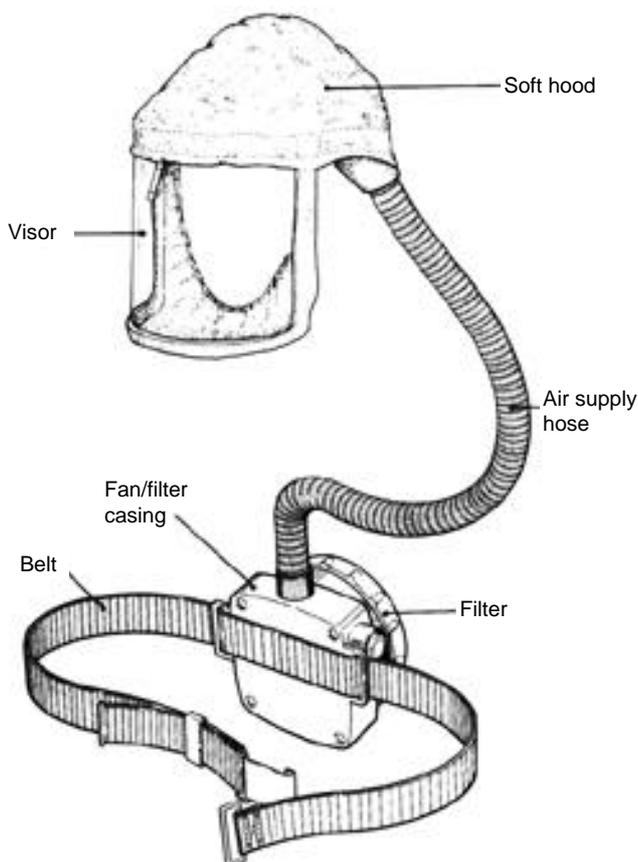


Figure 3 Lightweight powered visor

Face masks depend on good contact between the skin and the mask for their effectiveness. Many face masks are available in one size only and cannot be expected to fit all the working population. A good fit and seal are essential - without them the respirator will not give effective protection. It is advisable to obtain a selection of different models of RPE so that masks can be selected to give the best fit for individual wearers. It will only be possible to get a good seal if the skin in the region of the seal is smooth and without hair. Facial hair or glasses will tend to lift the mask off the face and permit inward leakage of contaminated air. A simple check on how well a face mask fits can be done in the following way:

- 1 Put on the equipment according to the manufacturer's instructions.
- 2 For disposable respirators, cup the hands over the whole of the facepiece; for respirators with separate filters, cover the inlet to the filter with the hands or with a flat sheet of card or similar material.
- 3 Inhale sharply so that the mask collapses slightly. Hold the breath.
- 4 If the mask remains collapsed for a few seconds and no leakage is detected, the mask probably fits adequately.
- 5 If leakage is detected, the headstraps should be re-adjusted and the test repeated. If leakage persists a different size or design of respirator is needed.

### Training

Everyone who is involved in the use of RPE should be appropriately trained. They must be aware of why the RPE is being worn and how it should be worn properly.<sup>2</sup> Training may be available from the supplier or manufacturer of your RPE.

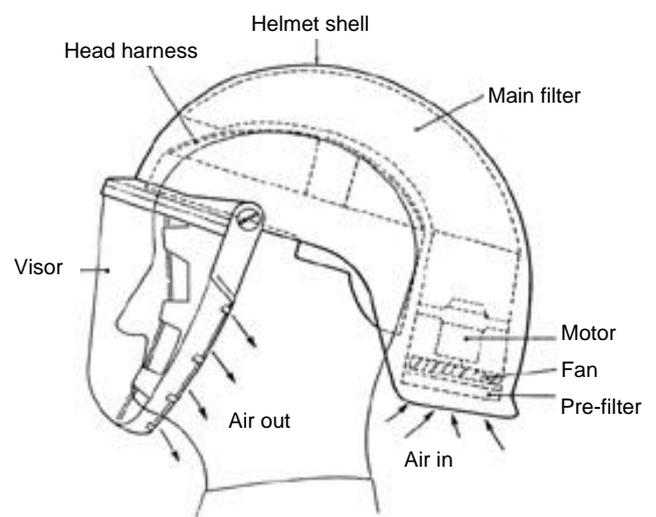


Figure 4 Powered helmet

**Table 1:** Respirators for woodworking

<i>Typical operations</i>	<i>Disposable respirator (see Figure 1)</i>	<i>Re-usable respirator (see Figure 2)</i>	<i>Powered dust respirator (see Figures 3 and 4)</i>
Machining (eg use of routers, planers, lathes, saws, VSM)*	EN 149 FFP2†	Filter to EN 143-P2 fitted to either a half mask to EN 140 or a full face mask to EN 136	Lightweight powered visor or helmet: to EN 12941 - TH1**
Hand sanding eg disc, bobbin, pad and portable machines*			
Assembly and handling of dusty materials*			
Work involving the use of composite boards such as medium-density fibreboard (MDF)*			
Changing dust collection bags on simple recirculating dust collectors in the workroom	EN 149 FFP3†	Filter to EN 143-P3 fitted to either a half mask to EN 140 or a full face mask to EN 136	Lightweight powered visor or helmet: to EN 12941 - TH2**
Entry into dust collection rooms/vaults††	Not suitable	Filter to EN 143-P3 fitted to a full face mask to EN 136	Lightweight powered visor or helmet to EN 12941 - TH2**
Entry into very dusty filter galleries for bag changing††			
Work inside heavily contaminated ducts††			

Notes: \* Unless COSHH assessment indicates that exposure to dust levels above 5 mg/m<sup>3</sup> is very unlikely. But remember your first duty is to control the dust at source. RPE must only be a temporary measure.

† FF - filtering facepiece (see Figure 1); P2 - medium-efficiency filter; P3 - high-efficiency filter.

\*\* TH1 - performance equivalent to FFP2; TH2 - performance equivalent to FFP3.

†† Ensure that the environment is not a confined space (eg an oxygen-deficient atmosphere).<sup>6</sup>

## Care of RPE

The manufacturer's recommendations should be followed on replacement of filters. Non-disposable RPE should be cleaned and disinfected after each use or at least once in every working day. Rubber face pieces can usually be cleaned with soap and lukewarm water, but the manufacturer's instructions should always be followed.

Disposable respirators should be discarded after each shift or more frequently if exposure is high.

## Reading list and references

- 1 *Wood dust: Hazards and precautions* WIS1(rev1) HSE Books 1997
- 2 *The selection, use and maintenance of respiratory protective equipment: A practical guide* HSG53 (Second edition) HSE Books 1998 ISBN 0 7176 1537 5
- 3 *Control of substances hazardous to health. The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice and guidance* L5 (Fourth edition) HSE Books 2002 ISBN 0 7176 2534 6
- 4 *Respiratory protective equipment: Legislative requirements and lists of HSE approved standards and type approved equipment* 4th edition HSE Books 1995 ISBN 0 7176 1036 5
- 5 *COSHH and the woodworking industries* WIS6(rev1) HSE Books 1997
- 6 *Safe work in confined spaces. Confined Spaces Regulations 1997. Approved Code of Practice* L101 HSE Books 1997 ISBN 0 7176 1405 0
- 7 *COSHH essentials: Easy steps to control chemicals* HSG193 (Second edition) HSE Books 2003 ISBN 0 7176 2737 3

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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