Wood dust

Selecting suitable respiratory protective equipment

HSE information sheet

Woodworking Information Sheet No 14 (Revision 2)

Introduction

This information sheet provides advice to employers and operatives on the selection of respiratory protective equipment (RPE) for use with both hardwood and softwood dust.

The Control of Substances Hazardous to Health Regulations (COSHH)[1] require you to assess and control the health risks from hazardous substances such as wood dust.[2,3] You should always try to prevent exposure by controlling any wood dust produced at source. The best way for you to do this is by having effective local exhaust ventilation (LEV). RPE is no substitute for controlling the dust at source and you should only use it as additional protection. For example, you might need to use respirators and other personal protection as a temporary measure where engineering controls are being developed and/or modified. They may also be needed for short-term jobs such as cleaning and maintenance that produce high levels of dust.

Key points

- 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 lungs) and the skin.[2,3]
- Engineering controls such as LEV will protect everyone in the workplace; a respirator will only protect the person who wears it.
- Dust respirators will give no protection at all against gases and vapours (eg from paint spraying).[4]
- Dust respirators filter the air breathed by the wearer to make it safe to breathe. They are not suitable for use where the amount of oxygen in the air may be low, such as in confined spaces.[5] These situations require breathing apparatus, which provides air from an independent source such as a cylinder.
- Unpowered respirators can make breathing more difficult and are not suited to high work rates. Powered respirators are more suited to these situations.

Selecting a respirator that provides adequate protection

Table 1 will help you to select RPE for the job you are doing. It includes the most common types used in woodworking, ie disposable respirators. Reusable respirators (half and full mask) powered masks and hoods/helmets are also an option. There are also other types of RPE that may be suitable, see *Respiratory protective equipment at work: A practical guide*[4] and HSE *COSHH essentials* R series[6] sheets for more information.

Disposable half masks (see Figure 1), sometimes referred to as filtering facepieces or orinasal respirators, are available with different protection factors (4, 10 and 20). Reusable masks (see Figure 2) and powered hoods/helmets (see Figure 3) have a range of protection factors up to 40. It is recommended that a protection factor of at least 20 is used to control the risk from wood dust.

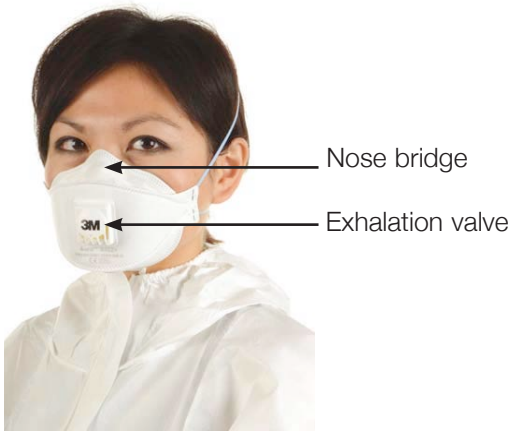

Figure 1 Disposable half-mask respirator

Remember

- Simple nuisance dust masks do not give any protection against substances hazardous to health and should not be used with wood dust.
- RPE used to protect against wood dust must be CE marked and suitable for the job you are doing. This means that it must provide effective protection to the wearer from the dust levels that they are exposed to as well as giving them enough clean air to breathe.
- The wearer must use the RPE properly. Follow the manufacturer's instructions.
- Respirators with an assigned protection factor of 4 should not be used for wood dust as the amount of protection they will give is too low.

RPE will only give effective protection when it is suitable. This means it has to be:

- the right standard;
- in good condition;
- properly fitted.

The respirators must also be stored correctly and for non-disposable RPE properly maintained by a competent person.

Figure 2 Half-mask respirator

Table 1: Respirator (RPE) protection factor required for woodworking operations

Typical woodworking operation	RPE protection factor required
Cutting pine or similar wood by use of saws, routers, vertical spindle moulders (VSMs), lathes, planers, and producing low dust levels	Protection factor 10 may be adequate provided effective local exhaust ventilation (LEV) is in use
Sanding wood by hand, disc, bobbin, pad etc. Also for all work involving more toxic woods[3] such as hardwoods, western red cedar and MDF*	Protection factor 20
Changing dust collection bags on simple recirculating dust collectors in the workroom	Protection factor 20
Entry into dust collection room/ vaults Entry into very dusty filter galleries for bag changing Work inside heavily contaminated ducts **Important: Ensure that none of these are confined spaces with an oxygen-deficient atmosphere**	Protection factor 20

* For MDF see also www.hse.gov.uk/woodworking/faqs.htm

Figure 3 Powered respirator with hood and helmet

Personal and work-related factors in selection of RPE

Fit testing

It is important that a tight-fitting mask is face fitted[7] as there must be good contact between the skin and the mask for it to be effective.

Many face masks are available in one size only and cannot be expected to fit everyone. You should therefore choose 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 – men should be clean-shaven. Facial hair or glasses will tend to lift the mask off the face and permit inward leakage of contaminated air. If a face fit cannot be achieved with a tight-fitting mask, a powered respirator should be considered.

RPE fit testing should be by a competent person, someone with the necessary skills, knowledge and experience – your RPE supplier/manufacturer should be able to help you. Fit-test records should be kept by the employer for at least five years and they should contain the following information:

- name of the person fit tested;
- make, model, material and size of the facepiece;
- whether the wearer's own mask (and if so, its condition), company pool mask or a fit-test service provider's test mask was used;
- whether the wearer required assistance putting on and fit checking the facepiece before the fit-test;
- the test exercises performed during the test;
- fit-test method employed (qualitative, eg taste sensitivity test or quantitative, eg testing with a particle counting device);
- measured fit-factor values for each exercise and the overall fit factor (or pass/fail decision for qualitative tests);
- pass level used in the test;
- date of the test;
- the details of the person carrying out the fit test (name, organisation, address etc);
- how many repeat tests were needed to obtain a pass and the reasons why; and
- the serial number or other means of identifying the equipment employed in the fit test.

Training

Everyone who wears RPE should be trained so that they understand why it has to be worn and how to wear and check the RPE correctly.[4] They should also be trained how to clean and store it when it is not in use. Your RPE supplier should provide information on the training required to use and maintain their products.

Maintaining RPE

Follow the manufacturer's recommendations and instructions[4] on replacement of filters and cleaning/disinfecting non-disposable RPE – this is normally at least once every working day. Rubber facepieces can usually be cleaned with soap and lukewarm water, but the manufacturer's recommendations and instructions should always be followed.

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

References

1 *Control of substances hazardous to health. The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance* (Sixth edition) L5 HSE Books 2013 ISBN 978 0 7176 6582 2 www.hse.gov.uk/pubns/books/l5.htm

2 *Wood dust: Controlling the risks* Woodworking Information Sheet WIS23(rev1) HSE 2012 www.hse.gov.uk/pubns/wis23.htm

3 *Toxic woods* Woodworking Information Sheet WIS30(rev1) HSE 2012 www.hse.gov.uk/pubns/wis30.htm

4 *Respiratory protective equipment at work: A practical guide* HSG53 (fourth edition) HSE Books 2013 ISBN 978 0 7176 6454 2 www.hse.gov.uk/pubns/books/hsg53.htm

5 *Safe work in confined spaces. Confined Spaces Regulations 1997. Approved Code of Practice, Regulations and guidance* L101 (Second edition) HSE Books 2009 ISBN 978 0 7176 6233 3 www.hse.gov.uk/pubns/books/l101.htm

6 HSE *COSHH essentials* R series on respiratory protective equipment www.hse.gov.uk/pubns/guidance/rseries.htm

7 *Fit testing of respiratory protective equipment facepieces* OC282/28 www.hse.gov.uk/foi/internalops/ocs/200-299/282_28.pdf

Further reading

Fit testing basics: www.hse.gov.uk/respiratory-protective-equipment/fit-testing-basics.htm

See also: HSE's COSHH website: www.hse.gov.uk/coshh/index.htm

HSE's woodworking website for more information on wood dust:
www.hse.gov.uk/woodworking/wooddust.htm

Further information

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