Moveable extraction: Fume hood on a flexible arm

Main points

- Dust and fume can cause serious lung diseases.
- Keep exposure as low as possible using all the controls in this sheet.
- Design, install, commission and maintain engineering controls. See sheet G406.
- Health monitoring is usually needed. See sheet G401.
- See manufacturers’ safety data sheets - select safer consumables.

Access and premises

- Only allow access to authorised staff.
- Locate the work away from doors, windows and walkways. Stop draughts interfering with the extraction.

Equipment

- Provide a good standard of general ventilation; 5-10 air changes per hour, with a through draught.
- Provide an extracted flanged welding hood attached to a flexible arm, or a mobile unit. See illustrations.
- You need an air speed of at least 1 metre per second to clear fume, and between 5 and 10 metres per second into a moveable hood duct.
- Fit a manometer, pressure gauge or tell-tale to show that the extraction is working.
- Discharge cleaned, extracted air to a safe place outside the building, away from doors and windows.
- Mobile units can return cleaned air to the workroom.
- Have a supply of clean air coming into the workroom to replace extracted air.

Procedures

- Remove grease and all surface coatings first, unless they are meant to be welded or cut through.
- Arrange work so that the worker’s head is out of the fume.
- Confirm that extraction is turned on and working.
- Adjust a moveable welding hood so it collects hot fume rising. The hood should be within one duct diameter of the welding point.
- Check for gas leaks.
Maintenance, examination and testing
✓ Follow the instructions in the manual - keep equipment in effective and efficient working order.
✓ If any equipment is faulty, repair it straight away.
✓ Daily, look for signs of damage to ducting, fans and air filters. Noisy or vibrating fans can indicate a problem.
✓ At least once a week, check that the extraction system and gauges work properly.
✓ You need to know the manufacturer’s specifications to check the extraction’s performance.
✓ If this information isn’t available, hire a competent ventilation engineer to determine the performance needed for effective control.
✓ The engineer’s report must show the target extraction rates.
✓ Keep this information in your testing log-book.
✓ Get a competent ventilation engineer to examine the extraction thoroughly and test its performance at least once every 14 months, or six months for non-ferrous metals. See the HSE publication HSG54 - see ‘Further information’.
✓ Keep records of all examinations and tests for at least 5 years.
✓ Review records - failure patterns show where preventive maintenance is needed.
✓ If hot work involves cadmium, seek advice on biological monitoring - see ‘Useful links’.

Personal protective equipment (PPE)
✓ Provide storage for clean and contaminated PPE.

Respiratory protective equipment (RPE)
✓ RPE should not be needed.

Other protective equipment
✓ Provide and ensure that workers use a welding helmet, flame-resistant overalls and protective gloves.
✓ Use a properly equipped contract laundry or a suitable equivalent to wash work clothing.
✓ Skin creams help in washing contamination from the skin. After-work creams help to replace skin oils.
  Caution: Never allow use of compressed air for removing dust from clothing.

Health monitoring
✓ You should consider health monitoring. See sheet G401.
✓ Consult an occupational health professional - see ‘Useful links’.
Cleaning and housekeeping
✓ Keep the work area clean and free of combustible materials.
✓ Clean the general workroom once a week.
✓ Dispose of hazardous wastes safely.

Training and supervision
✓ Tell workers that fume from welding and cutting can cause serious lung diseases.
✓ Working in the right way and using the controls correctly is important for exposure control. Train and supervise workers. See sheet WL0.

Further information
- The safe use of compressed gases in welding, flame cutting and allied processes HSG139 HSE Books 1997 ISBN 0 7176 0680 5
- Health and safety in arc welding HSG204 HSE Books 2000 ISBN 0 7176 1813 7
- Cadmium in silver soldering or brazing Engineering Information Sheet EIS31 HSE 1999 Web only version available at www.hse.gov.uk/pubns/eis31.pdf
- Thoriated tungsten electrodes Information document OC 564/6(rev) HSE 1995 Web only version available at www.hse.gov.uk/foi/internalops/foi/cc/500-599/564_6r.pdf
- For environmental guidelines see sheet WL0

Useful links
- Your trade association may advise on health and safety consultants and training providers.
- For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.
- Contact the British Occupational Hygiene Society (BOHS) on 01332 298101 or at www.bohs.org for lists of qualified hygienists who can help you.
- Look in the Yellow Pages under ‘Health and safety consultants’ and ‘Health authorities and services’ for ‘occupational health’.
- Also see www.nhsplus.nhs.uk.
- Biological monitoring - contact the Health and Safety Laboratory (HSL) e-mail hslinfo@hsl.gov.uk, or other service laboratories.

This document is available at: www.hse.gov.uk/pubns/guidance/ and www.hse.gov.uk/coshh/essentials/

This document 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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Employee checklist
☐ Do you know how to use the controls properly?
☐ Is the extraction in the right position and working?
☐ Use, maintain and store your protective equipment in accordance with instructions.
☐ Look for signs of leaks, wear and damage.
☐ If you find any problems, tell your supervisor. Don’t just carry on working.
☐ Co-operate with health monitoring.
☐ Wash your hands before eating, drinking, or using the lavatory.
☐ Never clean your hands with solvents or concentrated cleaning products.
☐ Use skin creams provided as instructed.