

G202

Laminar flow booth

COSHH essentials



The Control of Substances Hazardous to Health Regulations 2002 (COSHH) require employers to ensure that exposure is prevented or, where this is not reasonably practicable, adequately controlled. This guidance gives practical advice on how this can be achieved by applying the principles of good practice for the control of exposure to substances hazardous to health, as required by COSHH.

It is aimed at people whose responsibilities include the management of substances hazardous to health at work (eg occupational health specialists, anyone undertaking COSHH assessments, supervisors and is also useful for trade union and employee safety representatives). It will help you carry out COSHH assessments, review existing assessments, deliver training and supervise activities involving substances hazardous to health.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

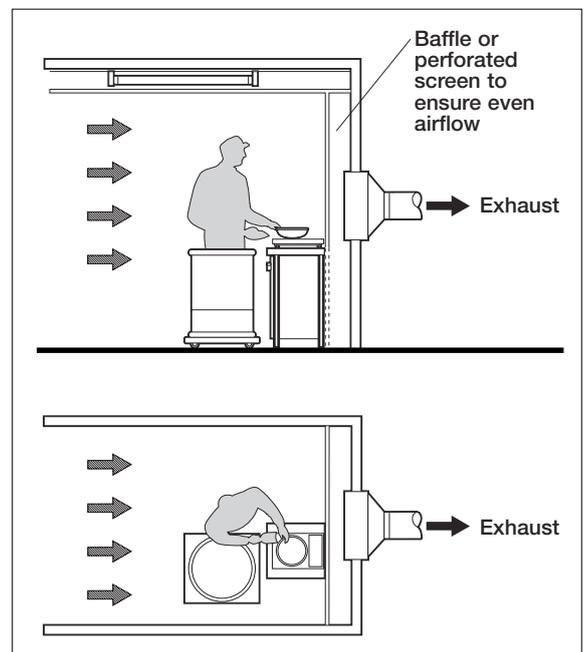
See Essential information near the end of the sheet.

Control approach 2 Engineering control

What this sheet covers

This sheet describes good control practice for using laminar flow booths – a type of local exhaust ventilation (LEV).

It covers the key points you need to follow to reduce exposure to an adequate level. Follow all the points, or use equally effective measures.



Access to work area

- ✓ Allow access to authorised and appropriately trained people only.

Equipment and procedures

- ✓ The booth should be large enough to contain all equipment and materials needed for the task.
- ✓ Air should be exhausted from the booth across the full cross-sectional area (see illustration).
- ✓ Ensure air flow across the whole of the working area is smooth.
- ✓ Airflow must be sufficient to control airborne contaminants effectively. This will depend on the design, size of opening and the type of process and substance being controlled. Mass flow of air is the assessment criteria for large booths.
- ✓ Ensure air inlets (which may be powered and include filters), are opposite the exhaust ventilation so air moves across the work area.
- ✓ Work 'side-on' to the airflow to reduce exposure.
- ✓ Provide turntables in the booth if this will make it easier to work side on to the airflow.
- ✓ Where possible, site the work area away from doors, windows and walkways, to stop draughts interfering with the LEV and spreading the airborne contaminant.
- ✓ Have an adequate clean air supply coming into the workroom to replace air extracted by the booth.

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- ✓ Keep extraction ducts short and simple - avoid long sections of flexible duct.
 - ✓ Provide an easy way of checking the LEV is working, eg airflow indicator or equivalent.
 - ✓ Discharge extracted air to a safe place away from doors, windows and air inlets.
 - ✓ With dusts you can re-circulate clean, filtered air into the workroom.
 - ✓ With vapours air re-circulation is not recommended.
 - ✓ Ensure all components are appropriate for the materials being captured, ie suitable for explosive, corrosive and flammable substances.
 - ✓ You should ensure that the booth is containing the contaminant. You should carry out a containment check.

Personal protective equipment (PPE)

- ✓ Chemicals identified by COSHH Essentials as **hazard group S** can damage the skin and eyes, or enter the body through the skin and cause harm. Check the safety data sheets to see what PPE is needed.
- ✓ Ask your supplier to advise on suitable protective equipment.
- ✓ Make suitable arrangements for maintenance, storage and replacement of PPE.

Personal decontamination

- ✓ Provide warm water, mild skin cleansers, and soft paper or fabric towels for drying. Avoid abrasive cleansers.
- ✓ Provide pre-work skin creams, which will make it easier to wash dirt from the skin.
- ✓ Provide after-work creams to replace skin oils.

Caution: 'Barrier creams' are not 'liquid gloves' and they do not provide a full barrier.

Maintenance, examination and testing

- ✓ Keep all equipment used for the task in effective working order. Maintain it as advised by the supplier or installer.
- ✓ Check for signs of damage to control equipment before starting work.
- ✓ Follow any special procedures before any systems are opened or entered, eg purging or cleaning. Don't forget you may need personal protective equipment (PPE) for some maintenance tasks.
- ✓ Visually check all equipment at least once a week for signs of damage or faults.
- ✓ For LEV systems, a user manual or log book is helpful in setting out the frequency of checking, maintenance or parts replacement.
- ✓ For LEV systems with no user manual or log book, you may need the help of a competent person. They can determine the performance needed for adequate control.
- ✓ Keep records of all examinations for at least 5 years.
- ✓ LEV systems require a statutory 'thorough examination and test' (TExT).
- ✓ Get a competent person to perform the TExT at least every 14 months.
- ✓ Carry out all actions arising from the TExT.
- ✓ HSG258 provides more detailed information on LEV systems and legal and competence requirements.
- ✓ Several measures are available to check effectiveness of controls. These range from simple qualitative (use of dust lamp) to complex quantitative techniques (eg air sampling) - usually for higher risk scenarios.

Cleaning and housekeeping

- ✓ Clean work equipment and the work area daily. Clean other equipment and the workroom regularly – at least once a week.
- ✓ Vacuum dry dust or use wet cleaning methods.
- ✓ Deal with spills immediately – use suitable protective gloves. You may also need respiratory protective equipment (RPE).
- ✓ Store containers in a safe place and dispose of empty containers safely.
- ✓ Put lids on containers immediately after use.

Caution: Never allow the use of brushes or compressed air for removing dust from skin and clothing. Avoid the use of brushes or compressed air for removing dust from surfaces or from inside machinery.

Training and supervision

- ✓ Provide supervision – ensure that safe work procedures are followed.
- ✓ Tell workers about the hazards associated with their work.
- ✓ Provide workers with training on:
 - working safely with hazardous substances;
 - when and how to use controls;
 - how to check they are working;
 - how the LEV system works;
 - how to use the LEV to get the best out of it;
 - how to check that the LEV is working; and
 - what to do if something goes wrong.
- ✓ Consider keeping training records.
- ✓ Changes to the work process and LEV means that staff might need retraining.
- ✓ Have a procedure to check that control measures are in place and being followed.
- ✓ Involve managers and supervisors in health and safety training.

Essential information

General storage of solids and liquids COSHH Guidance Sheet G101
HSE 2016 www.hse.gov.uk/pubns/guidance/g101.pdf

General advice on chemicals causing harm via skin or eye contact
COSHH Guidance Sheet S100 HSE 2016
www.hse.gov.uk/pubns/guidance/s100.pdf

Selection of personal protective equipment COSHH Guidance Sheet S101
HSE 2016 www.hse.gov.uk/pubns/guidance/s101.pdf

Further information

Clearing the air: A simple guide to buying and using local exhaust ventilation (LEV) Leaflet INDG408(rev1) HSE Books 2008
www.hse.gov.uk/pubns/indg408.htm

Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) HSG258 HSE Books 2011
www.hse.gov.uk/pubns/books/hsg258.htm

Local exhaust ventilation (LEV) workplace fume and dust extraction
web page: www.hse.gov.uk/lev/



You can find the full COSHH essentials series at www.hse.gov.uk/coshh/essentials/index.htm

Occupational Safety and Health Consultants Register www.oshcr.org/

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.

Employee checklist

- Are you clear about the procedures for doing the job?
- Check the room is well ventilated, and any extraction or air supply is switched on and working properly; check the airflow indicator or equivalent.
- Look for signs of leaks, wear and damage before every job.
- If you find any problems, tell your supervisor. Don't just carry on working.
- Make sure the air movement is across or away from your face.
- Wash hands before starting the job, and before eating, drinking, smoking or using the lavatory.
- Clear up spills immediately. For liquids, contain or absorb spills with granules or mats. For solids, use vacuum or wet cleaning.
- Dispose of spills safely.
- Use, maintain and store any PPE provided in accordance with instructions.

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