

SR10

COSHH Essentials for
service and retail

Embalming with formaldehyde solutions (formalin)

Control approach 2 Engineering control

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, and supervisors). It 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.

What this sheet covers

Embalming is carried out in morgues, funeral homes, forensic laboratories, medical schools and research laboratories. This sheet describes good control practice for embalming with formaldehyde solutions (formalin).

It covers the key points you need to follow to reduce exposure to an adequate level. This is achieved by following good control practice, ie follow all the points described in this sheet or use equally effective measures and in so doing, reduce exposure to below the relevant workplace exposure limit (WEL).

Hazards

Embalming can lead to exposure to hazardous chemicals such as formaldehyde solutions. For further guidance on managing the risks of infection from work activities which involve handling the deceased, refer to HSE guidance note HSG283 (see Further information).

Formaldehyde is a skin sensitiser and can irritate or cause an allergic reaction (dermatitis).

Breathing in formaldehyde vapour can lead to respiratory irritation. There is some evidence that the vapour may cause cancer if breathed in over a long time.

Access to work area

- ✓ Only allow access to authorised and appropriately trained people.

Equipment and procedures

- ✓ Use local exhaust ventilation (LEV) in the form of an embalming table fitted with extraction via slots running along the long sides of the table (see Figure 1).
- ✓ 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.
- ✓ Fit an airflow indicator to show that the extraction is working properly.
- ✓ Discharge extracted air to a safe place outside the building, away from doors, windows, air inlets and other premises.
- ✓ Have a supply of clean air coming into the workroom to replace extracted air.
- ✓ Make sure that the room ventilation and extraction are turned on and working correctly before starting work.
- ✓ Keep the workplace well ventilated and ensure a through draught.
- ✓ Buy liquid chemicals in containers that are easy to pour from.
- ✓ If possible, buy products in a ready-for-use solution.

- ✓ Store products safely in a cool, dry, dark, ventilated place in such a way as to be able to retain any spills. Only store the amount you need.
- ✓ Read the instructions for use on the product labels carefully and follow them.
- ✓ Put caps back on containers immediately after use and wipe the outside clean.
- ✓ Keep absorbent materials nearby in sizes proportionate to cope with spills.

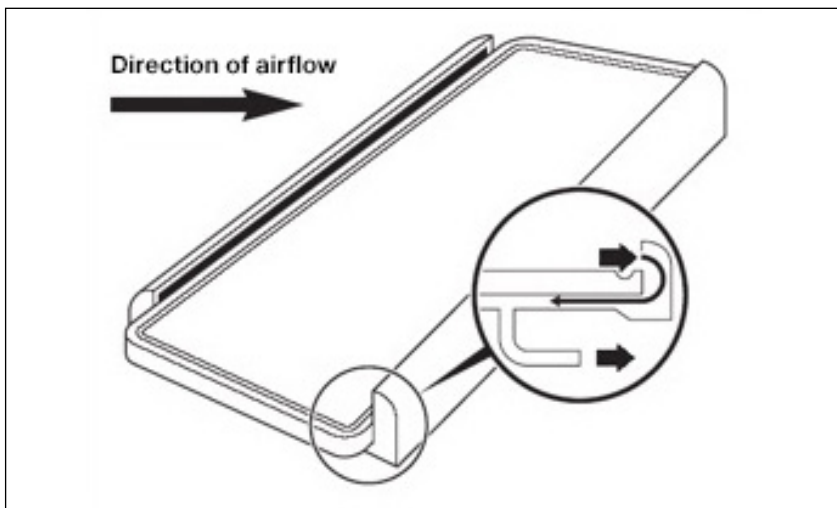


Figure 1 – Embalming table with slot extraction LEV

Respiratory protective equipment (RPE)

- ✓ RPE is not normally needed.
- ✓ You could, however, need RPE for cleaning up a spill. The need for RPE will depend on the volume of the spill, where it occurs, and on the COSHH risk assessment. Detailed specialist guidance relating to the volume of spill and appropriate controls is provided by the NHS (see Essential information) and summarised under Cleaning and housekeeping.
- ✓ If RPE with a tight-fitting face seal is used then fit testing will be necessary (see INDG479 in Essential information).
- ✓ Workers wearing tight-fitting RPE must be clean shaven.
- ✓ Ensure RPE is compatible with other PPE worn.
- ✓ Workers should be trained how to check RPE is working properly before every use, how to record this, how to fit it properly and how to look after it.
- ✓ Change the filters on respirators in accordance with manufacturers' recommendations and if:
 - the shelf-life expiry date has passed;
 - they are damaged or visibly contaminated;
 - they become harder to breathe through;
 - they have reached their break-through time for vapours or gases.
- ✓ Keep RPE clean and store it in a clean place.

-
- ✓ For reusable RPE, a thorough maintenance, examination and test should be carried out at least once a month. However, if the RPE is used only occasionally, an examination and test should be carried out before use and, in any event, the interval should not exceed three months.

Personal protective equipment (PPE)

- ✓ Follow the PPE advice on product labels and Safety Data Sheets (SDS).
- ✓ Provide and ensure that workers use protective gloves. Single-use nitrile gloves with forearm protectors are acceptable.
- ✓ If single-use gloves are selected and used then dispose of them safely every time you take them off.
- ✓ Provide waterproof, slip-resistant boots and protective goggles.
- ✓ Wear an impervious apron. If splashes to other parts of exposed skin and eyes may occur then suitable impervious coveralls and face visor may be required.
- ✓ Ensure that all items of PPE are compatible.
- ✓ Consult workers to ensure PPE will be suitable for them.
- ✓ Workers must not take work clothing home for washing. Use a specialist contract laundry.
- ✓ Make suitable arrangements for maintenance, storage and replacement of PPE.

Personal decontamination and skin care

- ✓ Keep chemicals off your skin and eyes – wash off any splashes immediately.
- ✓ Provide warm water, mild skin cleansers, and soft paper or fabric towels for drying. Avoid abrasive cleansers.
- ✓ Provide pre-work skin creams, which make it easier to wash contaminants from the skin.
- ✓ Moisturisers should then be used after hand washing.
- ✓ Provide after-work creams to replenish skin oils.

Caution: These creams are not a substitute for gloves and 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 manufacturer, supplier or installer.
- ✓ Check for signs of damage to control equipment before starting work.
- ✓ Have equipment thoroughly examined and tested against its performance standard, at suitable intervals.
- ✓ For LEV, a user manual or log book is helpful in setting out the frequency of checking, maintenance or parts replacement.
- ✓ For LEV 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.
- ✓ LEV systems require a statutory 'thorough examination and test' (TExT).
- ✓ Get a competent person to perform the TExT at least once every 14 months.
- ✓ Carry out all actions arising from the TExT.
- ✓ Keep an employer record for at least five years of TExT information such as target extraction rates, which show the LEV is performing as originally intended.

-
- ✓ Several measures are available to check effectiveness of controls, ranging from simple qualitative (eg use of a dust lamp) to complex quantitative techniques (eg air sampling) usually for higher-risk scenarios. See G409 in Essential information.
 - ✓ HSG258 provides more detailed information on LEV systems and legal and competence requirements. See Further information.

Cleaning and housekeeping

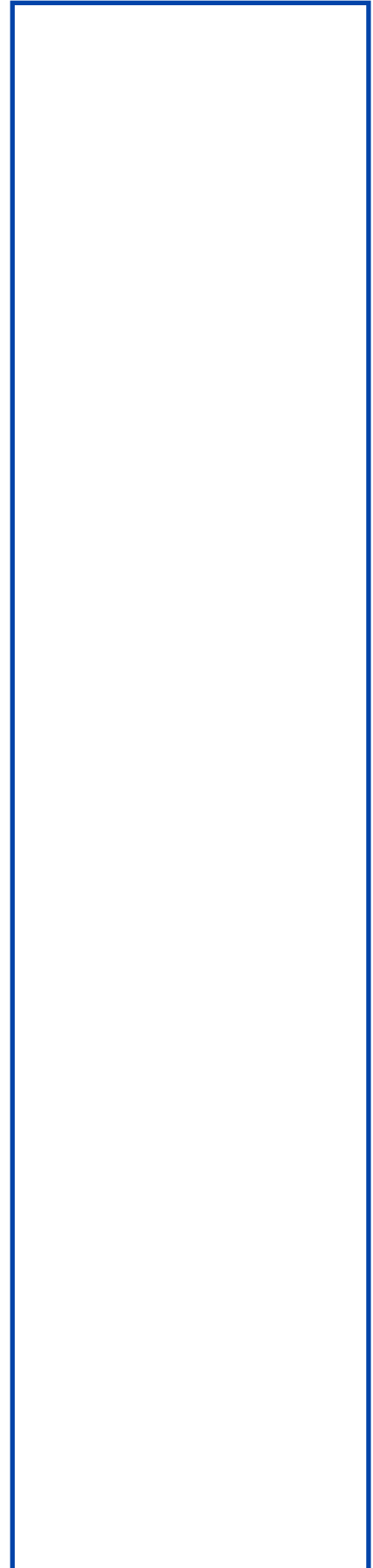
- ✓ Keep the work area clean.
- ✓ Provide good clean welfare facilities, eg washrooms and clothes storage areas. Clean these areas every day.
- ✓ Deal with spills immediately – absorb liquid spills with granules and decontaminate the area (ask your product supplier or follow the instructions provided on the SDS). Practise how to do this.
- ✓ A minor spill (less than 200 ml) is unlikely to contaminate the air to dangerous levels if dealt with promptly and wiped up with absorbent material by workers, without the need to wear RPE. They should, however, wear suitable impervious gloves (eg nitrile gloves).
- ✓ Larger spillages (from 200 ml to 5 litres) require the use of a formaldehyde spillage kit incorporating type APF 20 tight-fitting RPE provided with a filter cartridge capable of protecting against formaldehyde.
- ✓ Major spillages (over 5 litres) require immediate evacuation of the work area and the spill, to be dealt with by the Fire Service.
- ✓ Never pour waste or still residues down the drain. Collect it for recycling as advised in the supplier's SDS and local authority waste management guidance.
- ✓ Write down your procedures for dealing with clinical waste. You need a clinical waste container and a contract for safe disposal by a specialist contractor.

Health surveillance

- ✓ Employers are required to carry out health surveillance if workers use a product labelled 'May cause sensitisation by skin contact' or 'May cause sensitisation by inhalation', and in such cases should consult an occupational health professional.
- ✓ Provide health surveillance for asthma where there is a reasonable likelihood that this may occur in your workplace. See sheet G402 in Essential information.
- ✓ Provide health surveillance for dermatitis where there is a reasonable likelihood that this may occur in your workplace. See sheet G403 in Essential information.
- ✓ Consult an occupational health professional on the level of health surveillance required.

Training and supervision

- ✓ Tell workers about the hazards associated with their work and how to recognise early signs of asthma and dermatitis.
- ✓ Provide supervision – ensure that safe work procedures are followed.
- ✓ Involve managers and supervisors in health and safety training.



Essential information

S100 – General advice on chemicals causing harm via skin or eye contact

S102 – Selecting personal protective equipment

G402 – Health surveillance for occupational asthma

G403 – Health surveillance for occupational dermatitis

G409 – Exposure measurement: Air sampling

Formalin – Manchester University NHS Foundation Trust (mft.nhs.uk)

INDG479 – Guidance on respiratory protective equipment (RPE) fit testing

R3 – UK Standard Assigned Protection Factor 20 (APF 20)

Further information

Managing risks from skin exposure at work HSG262 (second edition), HSE Books 2015. <https://www.hse.gov.uk/pubns/books/hsg262.htm>

Preventing contact dermatitis and urticaria at work INDG233(rev2), HSE Books 2015. <https://www.hse.gov.uk/pubns/indg233.htm>

LEV information for employees/users
<https://www.hse.gov.uk/lev/employees.htm>

Posters on protective gloves and skin care
www.hse.gov.uk/skin/information.htm

Managing infection risks when handling the deceased HSG283, HSE Books 2018. <https://www.hse.gov.uk/pubns/books/hsg283.htm>

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

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

Control of substances hazardous to health: The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice and guidance L5 (sixth edition) HSE 2013.
<https://www.hse.gov.uk/pubns/books/l5.htm>

Clearing the air: A simple guide to buying and using local exhaust ventilation (LEV) INDG408 (rev1), HSE Books 2017.
www.hse.gov.uk/pubns/indg408.pdf

Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) HSG258 (third edition), HSE Books 2017, ISBN 978 0 7176 6613 3. www.hse.gov.uk/pubns/books/hsg258.htm

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

For information about health and safety, visit <https://books.hse.gov.uk> or <http://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.

To report inconsistencies or inaccuracies in this guidance, email: commissioning@tso.co.uk

Employee checklist

- Do you understand the health hazards associated with your work?
- Are you sure about safe working procedures?
- Do you know how to use controls?
- Check LEV is working prior to every use.
- 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.
- Use, maintain and store your PPE in accordance with instructions.
- Wash hands before eating and drinking, after smoking and using the lavatory, and after work.
- Never clean your hands with concentrated cleaning products or solvents.
- Check your skin regularly for dryness or soreness – make sure you know the procedure on reporting if such symptoms occur. Early intervention means it will be less likely that you develop permanent symptoms.
- Use skin creams provided as instructed.
- Co-operate with health surveillance.