

SR2

COSHH Essentials for
service and retail

Diluting chemical concentrates

Personal protective equipment (PPE) /
general ventilation

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

This sheet describes good control practice for the control of exposure when diluting concentrated chemicals.

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.

Hazards

- ✓ Some concentrates are biocidal products containing chemicals that are toxic by inhalation or to the skin, or are classified as sensitisers, and should be avoided (eg quaternary ammonium compounds) unless the sanitation programme identifies an absolute requirement. Authorised products are safe for use as long as you follow the instructions on the label.
- ✓ Contact with many products or prolonged contact with water (wet-work) can lead to dermatitis. Some can also damage the eyes.
- ✓ Some products may cause asthma or may be flammable – check the Safety Data Sheet (SDS).
- ✓ Avoid products that contain hydrofluoric acid (HF) as it can cause serious burns and blindness.
- ✓ Caustic soda (sodium hydroxide) can erupt when mixed with water and lead to splashes in the eye, which can cause blindness.
- ✓ Never add any other chemical to concentrates that contain bleach (sodium hypochlorite solution). This can cause a dangerous gas (chlorine) to be given off which can cause irritation and corrosion to the eyes, skin and respiratory tract.

Access to work area

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

Equipment and procedures

- ✓ If diluting with a solvent, make sure the room is well ventilated. This can be natural ventilation from doors, windows etc. or controlled, where air is supplied and/or removed by powered fans.
- ✓ Where this is not possible, you may need to wear appropriate respiratory protective equipment (RPE).
- ✓ Buy liquid products in easy-pour containers that will minimise risk of spillages.
- ✓ Store products securely in a cool, dry, ventilated, dark place, in such a way as to be able to retain any spills. Only store the amount you need.
- ✓ Reduce skin contact – workers should wash off any splashes immediately.
- ✓ Ensure that workers follow instructions for use by reading the label, and make up solutions ready for immediate use only.

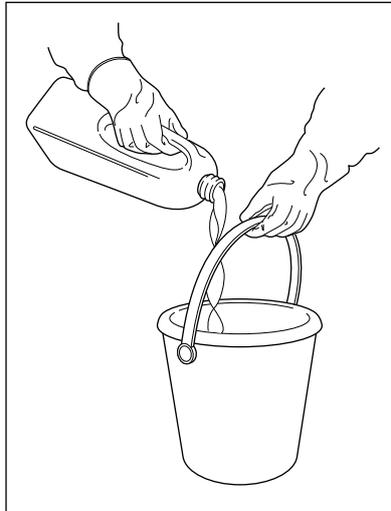
- ✓ Put caps back on containers immediately after use and wipe the outside clean.

Liquids

- ✓ Add the concentrate to the diluting liquid – never the other way round, unless the instructions say so.
- ✓ Never decant a concentrate into an unlabelled container.

Powders

- ✓ Where possible, buy solid products in tablet or granule form.
- ✓ Make a thin paste first with a small amount of diluting liquid, then dilute as for liquids.



Respiratory protective equipment (RPE)

- ✓ RPE is not normally needed when a good standard of general ventilation with a through draught is provided. You could, however, need RPE where this is not possible or for cleaning up a spill. The need for RPE will depend on the volume and location of the spill, and on the COSHH risk assessment.
- ✓ In such cases, as a minimum, provide tight-fitting RPE with a filter cartridge capable of protecting against the chemical concentrate. See the chemical supplier's SDS and sheet R3 in Essential information.
- ✓ If RPE with a tight-fitting face seal is used then fit testing will be necessary (see INDG479 in Further 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 manufacturer's 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)

- ✓ Provide protective gloves and ensure that workers wear them. Single-use nitrile gloves are acceptable.
- ✓ If single-use gloves are selected then dispose of them safely every time you take them off.
- ✓ Provide waterproof, slip-resistant boots and protective goggles.
- ✓ Consult workers to ensure PPE will be suitable for them.

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- ✓ Ensure that all items of PPE are compatible.
 - ✓ Make suitable arrangements for maintenance, storage and replacement of PPE.

Personal decontamination and skin care

- ✓ Keep chemicals off your skin – 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 will 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 supplier or installer.

Cleaning and housekeeping

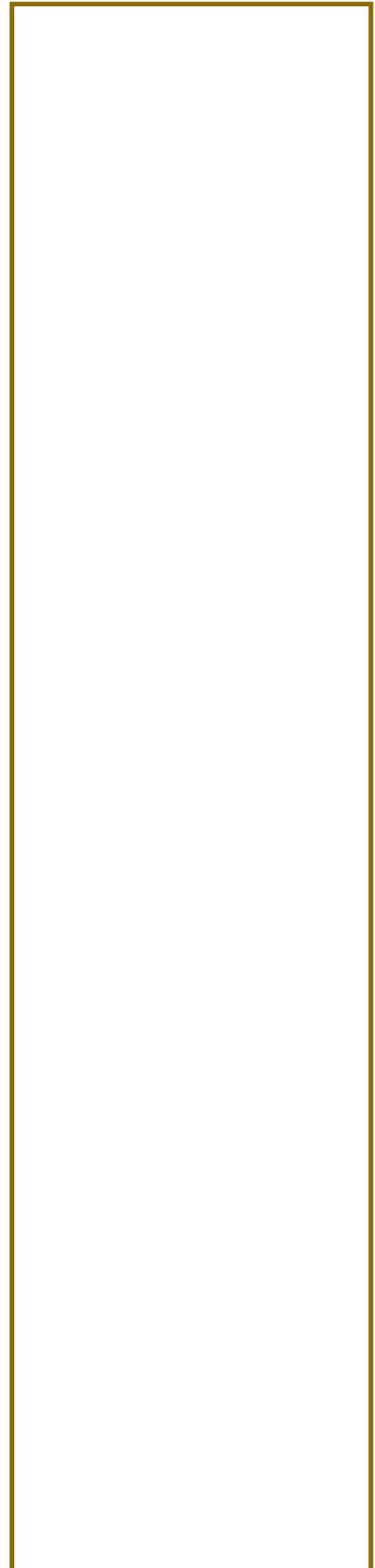
- ✓ Clean work equipment and the work area daily. Clean other equipment and the workroom regularly – at least once a week.
- ✓ Make sure the workspace is well ventilated with a through draught.
- ✓ Normally concentrates identified as containing chemicals that are toxic by inhalation or to the skin, or are classified as sensitisers, should be avoided (eg some aldehydes) unless the sanitation programme identifies an absolute requirement. In such cases, strict safety measures to control exposure will be required.
- ✓ 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).
- ✓ Dispose of hazardous waste safely in a labelled, lidded container and follow local authority waste management guidance.

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 for details.
- ✓ Provide health surveillance for dermatitis where there is a reasonable likelihood that this may occur in your workplace. See sheet G403 in Essential information for details.
- ✓ It may be helpful to consult an occupational health professional on what the health surveillance should cover.

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

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

Further information

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

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

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>

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

Preventing contact dermatitis and urticaria at work INDG233(rev2), HSE 2015. www.hse.gov.uk/pubns/indg233.pdf

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

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

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

- Use, maintain and store your PPE in accordance with instructions.
- Check that any RPE you may wear works properly every time you use it. Look for signs of leaks, wear and damage.
- 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.