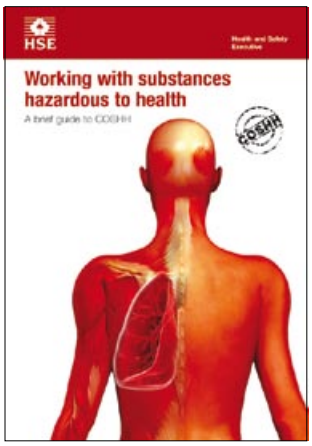
Working with substances hazardous to health

A brief guide to COSHH



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Introduction

This leaflet describes how to control hazardous substances at work, so they do not cause ill health. It will help you understand what you need to do to comply with the Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended) which apply to the way you work with these substances.

This leaflet provides measures that you, as an employer, may need to do to protect your employees from hazardous substances at work. It will also be useful to employees and their safety representatives.

Why do I need to read this leaflet?

Every year, thousands of workers are made ill by hazardous substances, contracting lung disease such as asthma, cancer and skin disease such as dermatitis. These diseases cost many millions of pounds each year to:

- industry, to replace the trained worker;
- society, in disability allowances and medicines; and
- individuals, who may lose their jobs.

You, as the employer, are responsible for taking effective measures to control exposure and protect health. These measures can also improve production or cut waste.

Myth 'Of course it's safe – we've always done it this way.'

Reality Some diseases take years to develop. If exposure is high because the task has always been done that way, maybe it's time for a change.

Looking after your business

Your aim in running your business is to make a profit. You know what you do, and how you are doing it. You know what 'processes' and 'tasks' are involved. You know the short cuts. Ensuring your workers remain healthy may also lead to healthy profits.

Which substances are harmful?

- Dusty or fume-laden air can cause lung diseases, eg in welders, quarry workers or woodworkers.
- Metalworking fluids can grow bacteria and fungi which cause dermatitis and asthma.
- Flowers, bulbs, fruit and vegetables can cause dermatitis.
- Wet working, eg catering and cleaning, can cause dermatitis.
- Prolonged contact with wet cement in construction can lead to chemical burns and/or dermatitis.
- Benzene in crude oil can cause leukaemia.

Many other products or substances used at work can be harmful, such as paint, ink, glue, lubricant, detergent and beauty products.

Myth 'It's natural so it can't be harmful.'

Reality Natural materials can be harmful. For example, henna can cause dermatitis and asthma, wood dust can cause asthma, stone or concrete dust can cause lung disease such as silicosis, and citrus oils can cause skin problems.

Ill health caused by these substances used at work is preventable. Many substances can harm health but, used properly, they almost never do.

Find out the dangers in your business – ask your supplier, your trade association, and check for your industry on HSE's website: www.hse.gov.uk.

Substances can also have other dangerous properties. They may be flammable, for example solvent-based products may give off flammable vapour. Clouds of dust from everyday materials, such as wood dust or flour, can explode if ignited. This leaflet does not deal with flammability or explosion hazards (see 'Find out more').

Look at each substance

Which substances are involved? In what way are they harmful? You can find out by:

- checking information that came with the product, eg a safety data sheet;
- asking the supplier, sales representative and your trade association;
- looking in the trade press for health and safety information;
- checking on the Internet, eg HSE's website pages for your trade.

Think about the task

If the substance is harmful, how might workers be exposed? By:

Myth 'I don't work with harmful substances.'

Reality Most businesses use substances that can be hazardous to health – even something as simple as flour can act as a substance hazardous to health.

- breathing in gases, fumes, mist or dust?
- contact with the skin?
- swallowing?
- contact with the eyes?
- skin puncture?

Bear these in mind when you look at the tasks.

Exposure by breathing in

Once breathed in, some substances can attack the nose, throat or lungs while others get into the body through the lungs and harm other parts of the body, eg the liver.

Exposure by skin contact

Some substances damage skin, while others pass through it and damage other parts of the body. Skin gets contaminated:

- by direct contact with the substance, eg if you touch it or dip your hands in it;
- by splashing;
- by substances landing on the skin, eg airborne dust;
- by contact with contaminated surfaces – this includes contact with contamination inside protective gloves.

Exposure by swallowing

People transfer chemicals from their hands to their mouths by eating, smoking etc without washing first.

Exposure to the eyes

Some vapours, gases and dusts are irritating to eyes. Caustic fluid splashes can damage eyesight permanently.

Exposure by skin puncture

Risks from skin puncture such as butchery or needlestick injuries are rare, but can involve infections or very harmful substances, eg drugs.

Safety data sheets

Products you use may be 'dangerous for supply'. If so, they will have a label that has one or more hazard symbols. Some examples are given here.

These products include common substances in everyday use such as paint, bleach, solvent or fillers. When a product is 'dangerous for supply', by law, the supplier must provide you with a safety data sheet. Note: medicines, pesticides and cosmetic products have different legislation and don't have a safety data sheet. Ask the supplier how the product can be used safely.

Safety data sheets can be hard to understand, with little information on measures for control. However, to find out about health risks and emergency situations, concentrate on:

- Sections 2 and 16 of the sheet, which tell you what the dangers are;
- Sections 4-8, which tell you about emergencies, storage and handling.

Since 2009, new international symbols have been gradually replacing the European symbols. Some of them are similar to the European symbols, but there is no single word describing the hazard. Read the hazard statement on the packaging and the safety data sheet from the supplier.

European symbols

New International symbols

Hazard checklist

- ☐ Does any product you use have a danger label?
- ☐ Does your process produce gas, fume, dust, mist or vapour?
- ☐ Is the substance harmful to breathe in?
- ☐ Can the substance harm your skin?
- ☐ Is it likely that harm could arise because of the way you use or produce it?
- ☐ What are you going to do about it?
  - Use something else?
  - Use it in another, safer way?
  - Control it to stop harm being caused?

Myth 'What do you expect – it's a dirty job!'

Reality Why does your job need to be dirty? Think about changing the way you work to produce cleaner processes.

Assessing risk

Risk assessment is not just a paper exercise. It's about taking sensible steps to prevent ill health. You need to know how workers are exposed, and to how much, before you can decide if you need to do anything to reduce their exposure. The COSHH Regulations require employers to assess the risk to their employees, and to prevent or adequately control those risks. Sometimes, it's easy to judge the amount of exposure to substances and decide what you can do about it.

When the task involves very small amounts of material, even if these are harmful, when there is little chance of it escaping, the risk is low. But the risk in a different task – such as cleaning up and disposal – will be higher because the harmful substance may be breathed in or get onto the skin.

When the task involves larger amounts of material, with obvious leaks, exposure is higher and so is the risk. Whether the substance is harmful or not, your need to control it is obvious. Decide what measures you need to take, and when.

If you have five or more employees, you must record your assessment but, even if you have fewer than five, it makes sense to write down what steps you have taken to identify the risks. And the really important part is making a list of the actions you are taking to control the risks to health. You can look at examples of risk assessments for different industries on www.hse.gov.uk/risk/casestudies.

HSE has developed a free internet tool for identifying good control practice: www.coshh-essentials.org.uk. It covers a wide range of processes and activities and also produces advice for products that have safety data sheets.

However, there may be no 'good practice' advice available for your process. Where this is small-scale with obvious control measures, you can do the assessment yourself. In other cases, or where you are not sure, ask your supplier, trade association or other reliable information sources. You may need professional advice such as from an occupational hygienist – see 'Getting help'.

What are exposure control measures?

Control measures are always a mixture of equipment and ways of working to reduce exposure. The right combination is crucial. No measures, however practical, can work unless they are used properly.

So any 'standard operating procedure' should combine the right equipment with the right way of working. This means instructing, training and supervising the workers doing the tasks.

You need control measures that work and continue to work – all day, every day.

Examples of control measures

Substance, process	Control equipment	Way of working	Managing
■ Cleaning with solvent on rag.	■ Use a rag holder. ■ Provide a small bin with a lid for used rags.	■ Avoid skin contact. ■ Reduce solvent vapour from used rags.	■ Check controls are used. ■ Safe disposal.
■ Dust and sparks from abrasive wheel.	■ Put an enclosure around the wheel and extract the air to a safe place.	■ Check the airflow indicator. ■ Make sure the extraction works.	■ Maintain controls. ■ Test controls as required by law.
■ Fume from cutting demolition scrap.	■ Ventilated welding helmet, gloves. ■ Washing facilities.	■ Work outdoors upwind of the fume wherever possible. ■ Allow the fume to clear before removing helmet.	■ Check if there is any lead paint on the scrap being cut. ■ Carry out health checks.
■ Cutting-fluid mist from a lathe. ■ Swarf.	■ Put an enclosure around the lathe and extract the air to a safe place. ■ Protective gloves.	■ Use skin-care products. ■ Make sure the extraction works. ■ Allow time for the mist to clear from the enclosure before opening it.	■ Train workers. ■ Check and maintain fluid quality. ■ Test controls as required by law. ■ Carry out health checks.
■ Dust from disc cutter on stone worktop.	■ Use an enclosure to extract air to a safe place. ■ High-efficiency vacuum cleaner.	■ Cut and polish worktops inside an enclosure. ■ Vacuum up dust.	■ Test and maintain controls. ■ Carry out health checks.

Myth 'They wouldn't sell it to us if it wasn't safe.'

Reality Just because something is available to buy, does not mean it is safe – you can buy cyanide for industrial use.

Choosing control measures

In order of priority:

1 Eliminate the use of a harmful product or substance and use a safer one.
2 Use a safer form of the product, eg paste rather than powder.
3 Change the process to emit less of the substance.
4 Enclose the process so that the product does not escape.
5 Extract emissions of the substance near the source.
6 Have as few workers in harm's way as possible.
7 Provide personal protective equipment (PPE) such as gloves, coveralls and a respirator. PPE must fit the wearer.

If your control measures include 5, 6 and 7, make sure they all work together.

Control equipment

Control equipment comes in many forms. It includes ventilation to extract dust, mist and fume; glove boxes and fume cupboards; spray booths and refuges (clean rooms in dirty work areas). It also includes using water to reduce dust, and systems for disinfecting cooling water.

For control equipment, your supplier should provide a 'user manual'. If you don't have one, ask for it. And if this is impossible, you may need professional help to write one. The user manual should set out schedules for checks, maintenance and parts replacement. For example it should include:

Myth 'I've given them all masks – problem solved!'

Reality This won't solve it. Control the source of exposure and then they might not need masks.

- a description of the system;
- the daily checks the worker or supervisor needs to carry out, eg the ventilation is turned on, the airflow indicator gives the right reading;
- the weekly or monthly checks the supervisor or owner needs to carry out, eg of equipment wear and tear, and that short cuts are not creating dangers;
- details of any thorough examination and test;
- signs of wear and control failure;
- a list of replaceable parts;
- a description of how operators should use the system so it works effectively.

Remedy defects in good time. It is pointless making checks if you take no action when something is wrong. And you are not managing health and safety properly if the 'thorough examination and test' produces a long list of 'actions needed'.

Keep simple records of your checks and actions, eg in a logbook, and keep these records for at least five years.

Staying in control: Checking and maintaining

Once you've got control, you need to keep it. As the employer, you must make sure that the control measures (equipment and the way of working) keep working properly.

You should name someone to be in charge of checking and maintaining control measures. It could be you, or someone you appoint, as long as they know what they need to do, and are able to do it. That is, they are 'competent' to:

- check that the process isn't emitting uncontrolled contaminants;
- check that the control equipment continues to work as it was designed;
- check that workers follow the right way of working.

Two of the most common control measures where maintenance is critical are local exhaust ventilation (LEV) and personal protective equipment (PPE).

Local exhaust ventilation (LEV)

If you use local exhaust ventilation to control exposure, it needs regular checking and thorough examination and testing at least once every 14 months or at more frequent intervals if you are using it with one of the processes listed in Schedule 4 of COSHH.

Many people, eg engineers or insurance companies can carry out thorough examination and testing of LEV. Whoever does the work must be competent – see 'Getting help'.

Personal protective equipment (PPE)

Personal protective equipment is often used as part of control measures. This also needs checking and maintenance because, if it fails, it no longer provides protection and exposes the wearer to danger. The users need to know exactly what they are doing, and so do the supervisors.

PPE suppliers and trade associations can tell you about training in how to use it properly. See 'Getting help' and 'Further information'.

Checklist for good control practice

- ☐ Do you design and run your processes to keep the spread of contaminants as low as possible?
- ☐ Do you think about all routes of exposure – breathing in, on skin or swallowing?
- ☐ Do you choose control measures according to the amount of substance, how it gets into the body and how much harm it will cause?
- ☐ Do you make sure that measures are effective, easy to use, and work properly?
- ☐ Do you also need to issue personal protective equipment (PPE)?
- ☐ Do you check regularly that measures continue to work, and keep simple records?
- ☐ Do you tell workers about the dangers and how to use control measures properly?
- ☐ Do you avoid increasing the overall health and safety risks when making changes?

Skills and experience

Competence

Ensure that whoever designs, installs, maintains and tests your control measures is competent – they have the necessary skills, knowledge and experience. You can assess the competence of equipment and service providers with questions such as:

- Have you done this sort of work before?
- What are your qualifications?
- Do you belong to a professional organisation?
- Can I speak to previous clients?

Ideally, you want someone who knows your industry, has a successful track record, and gives good value for money.

Worker involvement

Involve your workers in developing control measures to make sure they are suitable for the way they carry out the work. Encourage them to suggest improvements, and to report anything they think might be going wrong.

Training, instruction and information

Explain to your workers, and anyone else who needs to know, what the dangers are. It is poor practice just to hand them a page of written information.

- Show workers how to use control measures properly, and how to check that they are working.
- Carry out practice drills for cleaning up spills safely – do this before any spillages happen.
- If workers need to use respirators, they also need face fitting and training.
- If they need to use protective gloves, they need to know how to put them on and take them off without contaminating their skin. See ‘Find out more’.

Keeping workers healthy

Monitoring exposure

Monitoring normally means air sampling but it may also involve taking biological samples, eg breath or urine. Monitoring normally makes reference to 'Workplace Exposure Limits' (WELs) published by HSE. These limits should not be exceeded (see EH40 in 'Find out more').

It is wasteful to try monitoring before you have put any control measures in place (see COSHH essentials sheet G409 www.hse.gov.uk/pubns/guidance/g409.pdf on air monitoring).

Health checks

If your trade press, HSE, or other information, shows there is a problem with health in your trade, such as asthma or dermatitis, your employees may need special health checks. The most common checks are for respiratory disease such as asthma and skin disease. See 'Find out more'.

REACH

REACH is a European Union regulation concerning the **R**egistration, **E**valuation, **A**uthorisation and restriction of **CH**emicals. It came into force on 1 June 2007 and replaces a number of European Directives and Regulations with a single system.

REACH will operate alongside COSHH and is designed so that better information on the hazards of chemicals and how to use them safely will be passed down the supply chain by chemical manufacturers and importers through improved safety data sheets.

Further information can be found on HSE's website: www.hse.gov.uk/reach/ and on the European Chemical Agency's website: www.echa.europa.eu/home_en.asp.

Getting help

What and who?	Trade association	HSE	Consultants/ service suppliers	Local health and safety groups
Good control	✓	✓	✓	✓
Testing LEV	✓	✓	✓	
Training	✓	✓	✓	✓
Monitoring		✓	✓	
Health checks		✓	✓	

This is not an inclusive list, but some useful sources of information and help are:

■ **The Occupational Safety and Health Consultants Register (OSHCR)** www.hse.gov.uk/oshcr/index.htm

OSHCR is a register of consultants who can offer general advice to UK businesses to help them manage health and safety risks.

■ **British Occupational Hygiene Society (BOHS)** 5/6 Melbourne Business Court, Millennium Way, Pride Park, Derby, DE24 8LZ. Tel: 01332 298101 www.bohs.org.

BOHS is the professional body for occupational hygienists, who understand how workplace hazards affect worker health and systems to control risks to health from work. The website has a list of consultants.

■ **Health & Safety Laboratory (HSL)** Business Development Group, Health & Safety Laboratory, Harpur Hill, Buxton, Derbyshire SK17 9JN. Tel: 01298 218000 www.hsl.gov.uk.

HSL's services include specialist advice and consultancy, risk assessment, and workplace monitoring (including biological monitoring).

■ **Institution of Occupational Safety and Health (IOSH)** The Grange, Highfield Drive, Wigston, Leicestershire LE18 1NN. Tel: 0116 2573100 www.iosh.co.uk.

IOSH is the association for health and safety professionals. The website allows you to search for consultants.

■ **United Kingdom Accreditation Service (UKAS)** 21-47 High Street, Feltham, Middlesex TW13 4UN. Tel: 02089 178400 www.ukas.com.

The UKAS website has a search function to find accredited testing and inspection service providers.

■ **Trade associations** Health and safety information is often produced by trade associations and published in the trade press.

■ **Occupational health professionals (doctors or nurses)** Look in Yellow Pages or other trade indexes for occupational health under 'Health and Safety Consultants' or 'Health Authorities and Services', or visit www.nhsplus.nhs.uk.

■ **Safety Groups UK (SGUK)** Edgbaston Park, 353 Bristol Road, Edgbaston, Birmingham B5 7ST Tel: 0121 248 2011 www.safetygroupsuk.org.uk

Find out more

HSE COSHH website: www.hse.gov.uk/coshh/index.htm

A short guide to the Personal Protective Equipment at Work Regulations 1992 Leaflet INDG174(rev1) HSE Books 2005 www.hse.gov.uk/pubns/indg174.pdf

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

EH40/2005 Workplace exposure limits: Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations 2002 (as amended) Environmental Hygiene Guidance Note EH40 (Second edition) HSE Books 2011 ISBN 978 0 7176 6446 7 www.hse.gov.uk/pubns/books/eh40.htm

Fire and explosion: A brief guide to DSEAR in the workplace Leaflet INDG370(rev1) HSE Books 2012 www.hse.gov.uk/pubns/indg370.pdf

Preventing contact dermatitis at work Leaflet INDG233(rev1) HSE Books 2007 www.hse.gov.uk/pubns/indg233.pdf

Read the label: How to find out if chemicals are dangerous Leaflet INDG352(rev1) HSE Books 2010 www.hse.gov.uk/pubns/indg352.pdf

Respiratory sensitisers and COSHH: Breathe freely – An employers' leaflet on preventing occupational asthma Leaflet INDG95(rev2) HSE Books 1995 www.hse.gov.uk/pubns/indg95.pdf

Further information

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.

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.

This leaflet can be found at www.hse.gov.uk/pubns/indg136.htm

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