BRITISH SAFETY COUNCIL

Working with hazardous substances

December 2020 – January 2021

A guide to preventing exposure to harmful substances

Sponsored by

NFDC

Know your game. Wear the right gear.

Ensure your site is a safe area.

NFDC *Voice of the Demolition Industry.*

Need Demolition? Think NFDC

01442 217 144 (Option 1) www.demolition-nfdc.com info@demolition-nfdc.com

#teamdemolition

Contents

Find us on:
/britishsafetycouncil
@britsafe
linkedin.com/company/british-safety-council
www.britsafe.org
sm.britsafe.org

Editor:
Thomas Tevlin
E tom.tevlin@britsafe.org

Graphics and design:
Dean Papadopoullos
E publications@britsafe.org

Advertisement sales:
E jas@membertrade.co.uk

Subscriptions:
E customerservice@britsafe.org

Subscription rates:
UK members: £40
UK non-members: £60
International members: £100
International non-members: £150

Introduction

One of the most common and serious risks to the health and safety of people at work is exposure to hazardous substances. Whether it be skin damage from repeated contact with chemicals, or serious and fatal lung diseases caused by inhaling harmful dusts, gases, fumes and vapours, it is clear hazardous substances can cause immense harm to workers' health.

However, the risk of workers suffering ill health from hazardous substances – and any associated safety dangers such as fires and explosions – can be eliminated or controlled, providing employers carefully assess the risks and implement suitable precautions to prevent or adequately control exposure.

This guide provides an overview of some of the key steps to take, based on HSE guidance.

Thomas Tevlin
Editor

The Guide is published by the British Safety Council, 70 Chancellors Road, London, W6 9RS, United Kingdom

Working with hazardous substances

Although many employers have spent significant time and effort in recent months on protecting workers and the public from the risk of Covid-19, it is vitally important businesses do not forget to safeguard staff from everyday health and safety hazards – such as exposure to hazardous substances.

In fact, a huge variety of substances used or created at work can pose serious harm to human health if they are inhaled, come into contact with the skin or enter the body in some other way, such as by being ingested.

These include substances supplied for use – such as chemicals, solvents, lubricants, paints, inks, adhesives and bleach – and those generated during work processes, such as wood and flour dust. Other common examples include mist from oils and water-based fluids used to provide cooling and lubrication for metalworking machines; fumes and gases from welding and soldering; and dust created by the cutting, grinding and abrasive blasting of materials, such as concrete, mortar, bricks and sandstone.

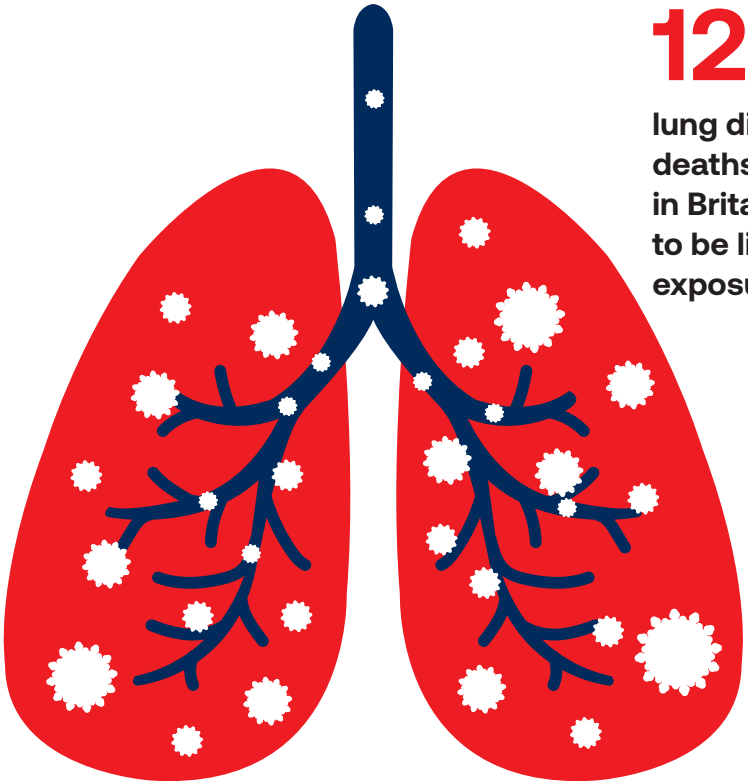
The range of hazardous substances found and created at work is so broad that the resulting health problems can range from short-term skin, nose and throat irritation right through to serious and fatal lung diseases and cancers.

As a result, a wide range of workers are potentially at risk of ill health due to exposure to hazardous substances, including:

- **Cleaners and catering staff** – who may come into contact with solvents found in cleaning materials
- **Engineering workers** – who can inhale fumes, dusts and gases during tasks such as welding, soldering, cutting, abrasive blasting and machining metals; and can suffer skin damage from contact with substance such as lubricants, adhesives, degreasers and metalworking fluids
- **Construction workers** – who can be exposed to harmful airborne substances, such as silica dust from cutting concrete, bricks and mortar; asbestos fibres present in buildings; fumes from epoxy resins and solvent vapour from some paints, thinners and glues; and skin exposure to harmful substances, such as wet cement, degreasers, bitumen and solvents in some paints and glues
- **Woodworkers, such as carpenters and joiners** – who can breathe in or suffer skin exposure to substances such as wood dusts, adhesives and varnishes

“A wide range of workers are potentially at risk of ill health.

Some facts and numbers



12,000

lung disease deaths each year in Britain estimated to be linked to past exposures at work

5,000

asbestos-related deaths per year currently in Britain, including from mesothelioma, lung cancer and asbestosis

17,000

estimated new cases of self-reported breathing or lung problems caused or made worse by work in Britain in 2019/2020

135,000

people who have ever worked in Britain report suffering breathing or lung problems caused or made worse by their work

Sources: HSE Health and Safety Statistics 2019/2020 & Labour Force Survey: hse.gov.uk/statistics

Working with hazardous substances

Employers must first try to prevent exposure to a hazardous substance if it is reasonably practicable to do so.

- **Beauticians** – who can suffer dermatitis from skin contact with solvents in nail varnish removers; and chest wheezing, chest tightness and asthma from inhaling dust filings from artificial nails, for example
- **Bakers** – who can inhale flour dust, or dusts from ingredients such as soya.

Exposure to hazardous substances can occur in a number of ways, including by breathing them in – when the substances then attack the nose, throat or lungs. Once breathed in, the substances can also pass from the lungs into the bloodstream and onto other tissues and organs in the body, causing damage elsewhere, such as to the liver.

Some substances can also directly damage the skin by coming into contact with it and some substances can also pass through the skin and cause damage elsewhere in the body – such as cancer and kidney disease.

Workers can also ingest hazardous substances by transferring traces of them from their hands to their mouths if they fail to adequately clean their hands. Other exposure routes and damage include eye irritation and inflammation from exposure to vapours, gases and dusts and skin burns and damage to the eyes from direct contact with caustic substances.

The health effects of exposure to hazardous substances can be immediate, such as dizziness or stinging eyes, or they can take several years to develop, such as certain lung diseases. Also, many of the long-term or chronic health effects cannot be cured once they develop.

The ill health effects and diseases

resulting from exposure to hazardous substances include:

- **Being overcome by toxic fumes** – which can cause serious damage to health and sometimes prove fatal
- **Respiratory cancers** – from exposure to substances such as asbestos, welding fume and silica dust found in materials such as concrete
- **Chronic pulmonary obstructive disease (COPD), such as bronchitis and emphysema** – a group of serious and often fatal long-term lung diseases that have been linked to exposure to certain dusts, chemicals, fumes and gases; such as silica dust, welding fume and isocyanates in some paints
- **Silicosis** – an irreversible and sometimes fatal lung disease caused by exposure to silica dust created when cutting materials such as concrete, mortar and sandstone
- **Asthma** – from exposure to substances such as wood dust, metalworking fluid mist, solder fume, isocyanates found in some paints, sealers and adhesives, substances in some cleaning products and flour dust
- **Skin irritation and disease** – for example, from exposure to chemicals, wet cement, metalworking fluids, printing inks, solvents in paints, certain beauty treatment products and prolonged or frequent contact with water, soaps and detergents.

It is also important to remember that some substances – such as solvent-based products – can give off flammable vapours which can ignite and cause fires. Some dusts – such as wood dust – can also form an explosive atmosphere and explode if a source of ignition is present, such as a naked flame or sparks.

What the law says

There are a number of health and safety laws that specifically require employers to protect their workers and others – such as contractors and members of the public who may be nearby – from exposure to hazardous substances.

In particular, the Control of Substances Hazardous to Health Regulations 2002 (COSHH) require employers to prevent – or to adequately control – exposure to hazardous substances to protect the health of their employees. There are also separate regulations on preventing employees from being exposed to two specific harmful substances – asbestos and lead.

Under COSHH, employers must:

- Assess the health risks from hazardous substances
- Prevent or control employees' exposure to hazardous substances through the use of appropriate control measures
- Ensure control measures are properly used and maintained
- Provide employees with appropriate information, instruction and training on the risks from hazardous substances
- Where appropriate, provide health surveillance for workers exposed to hazardous substances
- Where appropriate, monitor the level of hazardous substances employees are exposed to

- Draw up plans and procedures to deal with accidents, incidents and emergencies involving hazardous substances, where necessary.

Assessing the risks

The first step in assessing and controlling risks under COSHH is to identify the hazardous substances workers and others may be exposed to and the possible routes of exposure. A decision can then be taken on whether the existing control measures are adequate or if more precautions are required.

When assessing risks, employers should consider both substances that have been supplied for use – such as chemicals in containers, adhesives, lubricants, degreasers and beauty products containing solvents – and those that may be created by work processes. The latter will include substances such as construction dusts; welding fumes; dusts from abrasive wheels or baking processes; isocyanates from paint-spraying; and dust filings from artificial nails in beauty treatments. All possible routes of exposure – inhalation, skin contact or absorption and swallowing – should also be considered.

If a product is classed as 'dangerous for supply' – such as chemicals, solvents, paints or bleach – it will carry hazard warning symbols that provide an indication of danger, which can help when beginning to assess the health and safety risks it poses. The supplier of a substance classed as 'dangerous for supply' must also provide a safety data sheet giving information on the health and safety hazards it poses and ways of adequately controlling exposure to it. This can also provide help when starting to decide on the most appropriate exposure control measures for its safe use.

Once the hazardous substances and routes of exposure have been identified, employers must assess the risk of damage to workers' health and decide on the most suitable exposure controls. In doing so, the following steps should be taken, in order of priority:

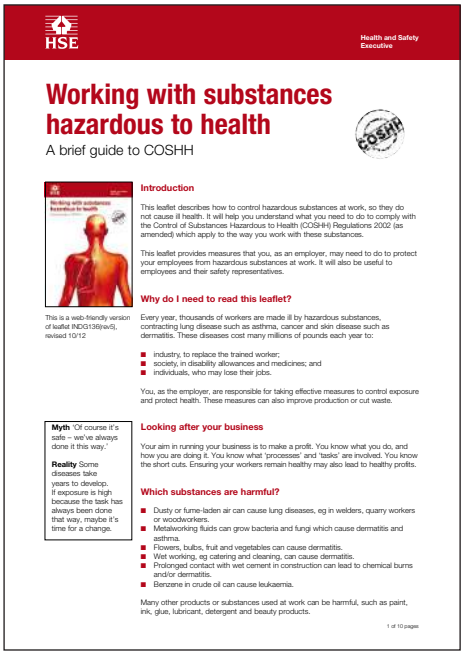
- Eliminate the use of the harmful substance or product
- Use a safer form of the substance or product
- Change the process to emit less of the substance
- Enclose the process so the product does not escape
- Extract emissions of the substance near the source
- Keep the number of workers at risk to a minimum
- Provide suitable personal protective equipment (PPE), such as gloves, coveralls and respirators.

Controlling exposure

Employers must first try to prevent exposure to the hazardous substance or process altogether if it is reasonably practicable to do so.

For example, it may be possible to use water-based rather than solvent-based products or, in construction, designers could avoid specifying the use of materials that contain high levels of silica

Free guidance:
Organisations such as HSE offer a wide range of guidance on managing the risks from hazardous substances.



HSE

Health and Safety Executive

Working with substances hazardous to health

A brief guide to COSHH

This is a web-friendly version of leaflet INDG136(rev5), revised 10/12

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.

1 of 10 pages

HSE's guidance is at:
hse.gov.uk

> **It may be possible to swop an irritant cleaning product for something milder.**

dust. In the services sector, meanwhile, it may be possible to swop an irritant cleaning product for something milder.

However, if it is not reasonably practicable to completely prevent exposure, then employers must adequately control it, by following a hierarchy of steps. These are:

- Using a safer form of the substance – for example, minimising the creation of dust by specifying materials such as powders in pellet, paste or tablet form or in sealed, pre-packed bags, rather than weighing them out by hand; or using a solid rather than a liquid substance to avoid splashes
- Changing the process to emit less of the substance and reduce the risk of exposure – for example, reducing the temperature of a process to reduce the amount of vapour getting into the air
- Enclosing the process or activity to prevent or minimise the escape or release of the substance – for example, using a closed transfer or handling system or using sheeting or temporary screens to prevent dust escaping during tasks such as soft-strip demolition
- Extracting emissions of the substance near the source – for example, using local exhaust ventilation (LEV) equipment
- Keeping the number of workers at risk to a minimum – such as limiting the number of people near the work
- Providing suitable PPE.

HSE says the exposure controls should always consist of a combination of suitable control equipment and

appropriate ways of working to prevent or reduce exposure. This means combining equipment, such as exhaust ventilation plant, with safe working procedures, such as suitable instruction, training and supervision for workers and maintaining the exposure control equipment.

Control equipment includes:

- Extraction systems – such as LEV systems that capture and extract dusts, mists, gases, vapour or fumes
- The use of water to suppress the creation of dust – for example, by attaching a hose to supply water directly to the blade of a cut-off saw to minimise dust when cutting up stone and concrete
- Spray booths that prevent paint fumes escaping.

LEV captures the contaminated air to prevent workers breathing it in and then filters and discharges it to a safe place or cleans it by removing the contaminants.

LEV includes on-tool extraction systems, which remove airborne contaminants as they are produced – for example, from a wood sander, soldering iron or concrete cutting saw. It also

HSE warning on control of welding fume

In 2019 HSE warned employers to ensure they are adequately controlling workers' exposure to all types of welding fume and during all welding tasks. This came after new scientific evidence from the International Agency for Research on Cancer found that even exposure to mild steel welding fume can cause lung cancer and possibly kidney cancer in humans. It was previously thought the risk of lung cancer was only linked to welding stainless steels, as opposed to the more commonly used mild steel.

In a safety alert, HSE said it would no longer accept any welding – including mild steel welding and welding outdoors – undertaken without suitable exposure control measures being in place, regardless of the duration. This is because there is no known level of safe exposure to welding fume and general ventilation does not achieve adequate control of the exposure.

HSE added that effective engineering controls should be provided for all welding activities indoors – typically local exhaust ventilation (LEV) equipment. However, if LEV alone does not adequately control exposure, it should be supplemented with suitable respiratory protective equipment (RPE) to protect workers from the residual fume.

HSE added that appropriate RPE must be provided for welding outdoors, and welders must be given suitable instruction and training.

See: bit.ly/36H26fm and www.hse.gov.uk/welding

includes capturing hoods that can be positioned over a work bench or area and walk-in air extraction booths – for example, for paint spraying.

LEV must be checked regularly to ensure it is working effectively and must undergo a thorough examination and test by a competent person at least once every 14 months or more frequently when working with certain harmful substances.

In summary, to achieve adequate control of exposure to hazardous substances under COSHH, the risk of harm should be reduced to as low as is reasonably practicable and:

- All control measures must be in good working order
- Exposures must be below the Workplace Exposure Limit (a legal limit on the amount of certain substances that can be present in the workplace air), where one exists, and
- Exposure to substances that cause cancer, asthma or genetic damage must reduced to the lowest level possible.

To help employers, HSE has developed a free webtool that provides basic advice on the appropriate control measures to follow for certain substances and tasks.

COSHH Essentials provides general guidance on controlling exposure to certain substances – such as chemicals, solvents, isocyanates, dusts, welding and solder fume and vehicle exhaust fumes. Employers can either follow 'direct advice sheets' for common tasks for their industry or enter information about the chemical or substance they are using to identify a generic exposure control guidance sheet to follow.

Control measures

A wealth of online advice on controlling exposure to hazardous substances in various tasks and industries is available from organisations such as HSE; the Breathe Freely lung disease campaign from the British Occupational Hygiene Society (BOHS); and IOSH's No Time to Lose occupational cancer campaign. See the back pages for details.

Some common ways of preventing or controlling exposure include:

Construction

- Getting materials, such as concrete blocks or wood, pre-cut to the correct size off-site to minimise the need for on-site cutting and therefore dust creation
- Using a block splitter instead of a cut-off saw to reduce the amount of dust produced when cutting concrete blocks to size
- Fitting vacuum extraction equipment and water supply systems on power tools, such as cut-off saws and hand sanders, to both capture and damp down dust
- Using a different method of work – such as using a nail gun to direct fasten cable trays instead of drilling holes first
- Using a vacuum cleaner to clear up dust, such as wood dust, instead of brushing it up, which forces the dust into the air, where it can be breathed in.

Engineering

- Fitting enclosures around machinery –

such as abrasive wheels, metalworking cutting machines and lathes – to stop substances such as metal cutting fluid mist escaping into the air
- Using powered extraction equipment on or around machines to capture and remove mist, dust or fume
- Vacuuming rather than hand brushing up dust
- Ensuring workers do not use a compressed air line to blow away dust from work surfaces or clothing, as this will disturb the dust and allow it to become inhaled.

Motor vehicle repair, transport and bus depots

- Reducing vehicle exhaust emissions inside garages, workshops and depots by turning off engines when not required; keeping doors and windows open where practicable; installing non-mechanical, fixed air vents and mechanical air extraction fans in the walls and ceilings; using tailpipe exhaust extraction systems. (Exposure to diesel engine exhaust emissions (DEEE) can cause short-term ill health effects, such as eye and lung irritation, and continuous long-term exposure to DEEEs can cause asthma, COPD and lung cancer.)

Vehicle paint spraying

- Providing an enclosed spray booth with suitable extraction and respiratory protective equipment that incorporates an airline.

Catering and food production

- Avoiding raising clouds of flour dust
- Using dust extraction plant and RPE in bakeries or flour mills
- Using dishwashers rather than washing up plates, utensils etc, to prevent prolonged or frequent contact with water (particularly in combination with soaps and detergents), which can cause the skin disease dermatitis.

Beauty treatment

- Providing an extractor hood or down draught table for nail work and protective gloves etc
- Ensuring hairdressing salon workers wear disposable non-latex gloves when rinsing, shampooing, colouring, bleaching hair, to prevent hands coming into contact with the chemicals in hairdressing products, and to prevent them coming into contact with water for long periods of time, both of which can cause skin irritation and damage.

Personal protective equipment

Another important control measure for work with hazardous substances is PPE. However, it should only be issued after other approaches – such as substitution of the substance and exhaust ventilation – have been implemented or tried and to support these measures. PPE includes:

- **Eye protection** – such as spectacles, goggles and facescreens
- **Breathing protection** – respirators, air-fed helmets and breathing apparatus

- **Body protection** – boiler suits, specialist clothing or disposable overalls
- **Hand and arm protection** – gloves, gauntlets or mittens.

Any PPE provided must be properly selected, used and maintained. Workers, and those in charge of maintaining it, must therefore by law be given adequate information, instruction and training on its correct use and maintenance.

Detailed advice on the use of PPE can be found on the websites of organisations such as HSE and the Breathe Freely and No Time To Lose campaigns.

Information and training

Another vital step in controlling exposure to hazardous substances is providing employees with appropriate information, instruction and training. This must cover:

- The nature of the hazardous substances employees work with
- Any health and safety risks that might arise from using or working with or near these substances
- How to use the control measures provided, including PPE
- The results of any exposure monitoring and the collective results of any health surveillance – without giving the names of individual employees
- The importance of reporting any faults they discover in the control measures
- Emergency procedures.

Employers must also prepare plans and procedures for dealing with emergencies involving hazardous substances, such as a fire or spillage involving a chemical that could affect the health and safety of workers and others, such as members of the public. In particular, where necessary, procedures should be in place for the safe evacuation of the workplace, dealing with any casualties and dealing with any fires, spills or damage.

Meanwhile, employees have a duty to cooperate fully with their employer in controlling exposure to hazardous substances. This means they must make full use of all the control measures and report any defects with them.

Monitoring and surveillance

Two other measures an employer may be required to implement if employees work with hazardous substances are exposure monitoring and health surveillance.

The concentration of hazardous substances in the air may need to be measured if the employer needs to ensure and/or demonstrate that:

- Exposures are below the relevant Workplace Exposure Limit or the Biological Monitoring Guidance Value; and/or
- The exposure control equipment or PPE is working effectively.

Monitoring normally involves sampling the air but it can also involve taking biological samples from workers – for example, breath or urine samples.

Employers may also need to provide health surveillance for employees who work with hazardous substances to detect early signs of adverse health changes or diseases connected with the likely exposure. Health surveillance is

necessary when:

- There is a disease associated with the substance in use – for example, asthma, dermatitis or cancer
- It is possible to detect the disease or adverse change and reduce the risk of further harm, and
- The conditions in the workplace make it likely that the disease will appear.

Health surveillance can involve checks, assessments and examinations and must be carried out by a competent person.

It can range from basic health checks – for example, skin inspections for signs of rashes, undertaken by the individual worker or their supervisor following suitable training – to more complicated procedures, such as lung function tests for employees at risk of inhaling harmful substances, carried out by a doctor.

Once all suitable health surveillance tests, questionnaires or examinations have been completed, the results must be interpreted. If there are signs the control measures are not working, steps must be taken as soon as practicable to eliminate or control the exposure to a safe level. Also, if a worker's health has been adversely affected by exposure to hazardous substances it may be necessary to redeploy them to safer work.

Detailed advice on health surveillance can be found on HSE's website.

Consultation and review

As with any aspect of health and safety, employers should consult and involve their employees when identifying the hazards and risks from hazardous substances and when developing the necessary control measures. This is because workers generally have a good knowledge of work practices and can often both highlight concerns and suggest appropriate improvements.

If the organisation employs five or more people, the significant findings of the COSHH assessment – including the actions that are being taken to control the risks – must be recorded. Even if less than five employees are present, it generally makes sense to record the findings if the risks are significant; it would be difficult to repeat the assessment; or if recording the findings will make it easier to review the control measures in future.

The risk assessment and control measures should also be reviewed at regular intervals and if a significant change occurs – such as the introduction of a new substance or process that could pose new health and safety hazards.

Skin problems

Another health problem that can be caused, or made worse, by work involving exposure to hazardous substances is skin damage and disease. The most common work-related skin disease is contact dermatitis, which can occur when the skin comes into contact with something that either causes irritation or causes an allergic reaction. Other common skin problems related to exposure to hazardous substances include:

- Burns – due to contact with corrosive substances, such as strong acids
- Skin cancer – for example, due to

exposure some to chemicals, such as coal tar products.

Some hazardous substances can also pass through the skin and cause disease elsewhere – such as blood diseases caused by exposure to benzene.

There are two types of irritant dermatitis:

Irritant contact dermatitis

This is caused by contact with substances that dry out and damage the skin, such as detergents, some solvents, oils, wet cement and some hairdressing products (such as some shampoos and hair bleaches). It can also be caused by prolonged or frequent contact with water – particularly in combination with soaps and detergents – which is known as 'wet work'. Dermatitis from wet work is common in industries such as hairdressing, metal machining, catering, cleaning and healthcare – for example, where hairdressers frequently get their hands wet while washing hair; catering staff spend long periods washing up; and healthcare staff have to frequently wash their hands for hygiene purposes.

Allergic contact dermatitis

This occurs when a person develops an allergy to something that comes into contact with their skin, such as chemicals in some hairdressing products (like hair dyes), chemicals in cement, some adhesives, and some plants and foods. The allergic reaction can appear over hours, days or even months and years, and once someone has developed an allergy, it is likely to be permanent and any skin contact with the substance involved will trigger the allergic reaction in the skin.

The signs and symptoms of the different types of dermatitis are similar, and the first signs are usually dry, red and itchy skin. Flaking, blistering, cracking, swelling and pain can follow, and the symptoms can be so severe the sufferer is unable to carry on doing the type of work that caused the condition. Most cases of dermatitis occur on the hands and forearms, though other areas can also be affected, such as the face.

Under COSHH, employers must prevent, or control, employees' exposure both to substances that can cause skin problems and disease and to substances that can enter the body through the skin and cause problems elsewhere.

HSE says that, when seeking to prevent ill health from skin exposure to hazardous substances, employers should follow the 'avoid, protect, check' approach.

This means:

- Avoiding direct contact between unprotected skin and hazardous substances, products and wet work if possible
- Protecting the skin
- Checking the skin regularly for the first signs of damage, such as itchy, dry or red skin.

There are many ways of preventing or reducing contact with substances that can damage the skin, such as:

- Eliminating the substance altogether – for example, using a scraper to remove paint instead of paint stripping with a solvent

Water suppression can help to damp down harmful dust when cutting materials such as concrete.

- Substituting a more hazardous substance with a safer alternative – such as changing a powder to a less dusty pellet form to reduce the spread of dust
- Avoiding direct handling of hazardous substances and contaminated work articles – for example, using tools and equipment, such as tongs and scoops, to handle items ather than the hands
- Using dishwashers rather than washing pans, utensils etc. by hand.

However, if it's not possible to totally avoid skin contact with harmful substances or processes, employers should take steps to protect workers' skin, including by providing suitable PPE, such as gloves, aprons and overalls.

Also, since adequate attention to skincare can help to protect the skin, employers should take steps such as:

- Providing adequate washing facilities with hot and cold water
- Providing the mildest and least aggressive skin cleaning cream that will do the job, as cleansers can also damage the skin
- Reminding workers to wash any contamination from their skin promptly
- Providing soft cotton or paper disposable towels for drying the skin
- Reminding workers of the importance of thoroughly drying the skin after washing
- Supplying suitable pre-work creams (these can make it easier to remove

dirt during washing, so milder cleansing agents can be used)
- Encouraging workers to protect their skin by frequently applying a moisturiser – this will help to replace the natural oils that help to keep the skin's protective barrier working properly (moisturisers should also ideally be applied each time the hands are washed and dried)
- Reminding workers to apply after-work moisturising creams at the end of a shift.

Employers must also provide suitable health surveillance if there is a risk of employees developing diseases such as dermatitis due to skin exposure to known hazardous agents. The aim is to detect the early signs of harm so action can be taken to prevent any further damage and to treat the condition.

Checks for skin damage and disease could be as simple as a responsible person carrying out regular visual inspections of the potentially exposed areas of workers' skin. HSE says at-risk employees should also be trained and encouraged to regularly check their skin – for example, for the early signs of dermatitis, such as itchy, dry and red skin.

Flammable substances

Employers must also assess and eliminate or control the risk of a fire or explosion from the presence, storage and use of substances, such as chemicals, gases and certain dusts.

There are many substances that can cause fires and explosions, including certain chemicals, solvents, paints, varnishes, welding gases (such as acetylene), petrol, fuel oil and liquid petroleum gas in canisters. Dusts from some machining and sanding operations can also form explosive atmospheres that may ignite – for example, if ignition sources such as sparks from electrical equipment are present.

Under the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR), employers must eliminate or reduce the risk of fires, explosions and other similar incidents (such as an uncontrolled chemical reaction), from dangerous substances and potentially explosive atmospheres. They must:

- Identify any dangerous substances used, created, or liable to be created and the fire and explosion risks they pose
- Put control measures in place to either eliminate those risks, or, where this is not reasonably practicable, control them
- Set up controls to reduce the impact of incidents involving dangerous substances
- Prepare plans and procedures for dealing with emergencies
- Provide employees and others, such as contractors, with adequate information, instruction and training on controlling and dealing with the risks
- Identify and classify areas of the workplace where explosive atmospheres may occur, and avoid allowing ignition sources, such as unprotected equipment that could cause sparks, into those areas.

Employers should first attempt to eliminate or reduce the risk from dangerous substances by replacing them with a safer or less risky substance or process. For example, it may be possible to replace a low 'flashpoint' liquid with a non-flammable one, or one with a higher flashpoint. However, if this is not possible, other control measures should be implemented, in the following order:

- Reduce the quantity of dangerous substances to a minimum
- Avoid or minimise releases of dangerous substances
- Control releases of dangerous substances at source
- Prevent the formation of an explosive atmosphere, including by ventilation
- Collect, contain and remove any releases to a safe place
- Avoid ignition sources
- Keep incompatible substances apart – for example, by keeping sources of ignition, such as naked flames and sparks, and substances that can catch fire, such as gas, vapour and dusts, separate.

The asbestos threat

One of the most deadly substances people can be exposed to at work is asbestos. In fact, around 5,000 people die every year in Britain from diseases such as mesothelioma and lung cancer linked to past exposure to asbestos.

Asbestos can be present in any UK building erected before 2000, and can be found in materials such as ceiling and floor tiles, roof sheets, lagged pipework, boiler flues and sprayed and textured coatings. Asbestos-containing materials (ACMs) are safe if kept in good condition but if the material becomes loose, damaged or disturbed, the fibres will be realised into the air and they can be breathed in by people nearby. Among those most at risk of exposure are tradespeople working on buildings – such as carpenters, plumbers, computer and data installers, fire and burglar alarm fitters and building surveyors.

Under the Control of Asbestos Regulations 2012 (CAW), those wishing to carry out building, maintenance and similar types of work in or on premises, plant and equipment that could contain asbestos must assess and eliminate or adequately control the risk of their employees or others being exposed to the substance. This means that, before starting any work that could disturb ACMs or suspected ACMs, they must:

- Identify whether asbestos is present and determine its type and condition – for example, by asking the building owner for information on the location and type of asbestos in the building and its condition (see 'duty to manage')
- If no information is available – or it is limited – and there is reason to suspect asbestos may be present, have the area surveyed and samples of the material due to be worked on analysed
- Alternatively, assume any material that will need to be disturbed contains asbestos and take the appropriate precautions for the highest risk situation.

The person in charge must also:

- Carry out a risk assessment to see if it is possible to undertake the work while avoiding the risk of asbestos exposure
- If it's not possible to avoid the risk of exposure identify who might be at risk and the possible level of asbestos exposure from the task
- Decide if the work needs to be carried out by an HSE-licensed asbestos contractor
- Decide on and implement appropriate work methods to ensure exposure is prevented or kept as low as reasonably practicable
- Prepare a plan of work, explaining what the job involves, the work procedures and the controls that will be followed
- Ensure those carrying out the work are provided with the correct equipment, such as asbestos enclosures and respiratory protective equipment
- Ensure the area is inspected at the end of the job to ensure it is fit for re-occupation
- Make arrangements for the safe disposal of any asbestos waste.

Under the CAW, employers must also ensure that all employees who could be at risk of exposure to asbestos – and those who supervise them – are provided with adequate information, instruction and training so they can safeguard themselves and others from being exposed to the substance. See HSE's website for more advice.

Duty to manage asbestos

To help prevent people being exposed to asbestos, those in charge of non-domestic premises – such as workplaces and public buildings – where asbestos is present, or is liable to be present, are required under the CAW to assess and manage the risks from ACMs on their site.

The idea is that by identifying and managing ACMs and suspected ACMs, the dutyholder – such as the employer or the building owner – can help to ensure that people working in or visiting the premises are not exposed to asbestos due to the substance being accidentally disturbed or deteriorating.

In essence, the dutyholder must:

- Take reasonable steps to find out if there are ACMs on the premises and, if so, in what amount, where they are located and what condition they are in
- Presume suspect materials contain asbestos unless there is strong evidence to prove otherwise
- Make, and keep up-to-date, records of the location and condition of all ACMs or suspected ACMs
- Assess the risk of anyone being exposed to asbestos fibres from the materials identified
- Prepare and implement a plan setting out how the risks from ACMs will be managed and the steps that will be taken to prevent the material being accidentally damaged or worked on
- Periodically review and monitor the plan to ensure it remains relevant and up-to-date
- Provide information on the location and condition of ACMs or suspected

ACMs to anyone who is liable to work on or disturb them – such as visiting contractors – so they can put in place suitable exposure controls.

As well as applying to all non-domestic premises, the 'duty to manage' also applies to those responsible for maintaining the shared areas of certain residential premises, such as the foyer, stairs and plant room of a block of purpose-built flats.

Finally...

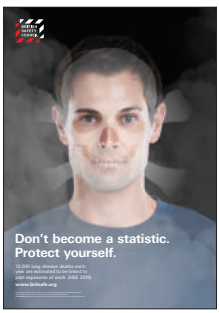
Hazardous substances can pose a serious risk to the health, safety and welfare of people at work – from chemical burns to health conditions such as asthma and dermatitis, and fatal diseases like mesothelioma and lung cancer.

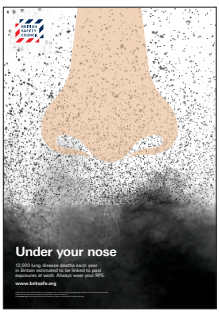
Fortunately, in most cases, steps can be taken to eliminate or control the risk fo exposure. For example, employers can implement adequate control measures, such as enclosing work processes and installing ventilation systems, and provide workers with appropriate instruction, training and supervision on how to protect themselves.

If steps such as these are followed, the number of workers who are injured or made ill by exposure to hazardous substances will be greatly reduced – any many lives will be saved.

Get the poster:
Remind workers of the dangers posed by harmful substances.

Purchase posters at:
www.britsafe.org/store/posters





Recommended reading

Health and safety toolbox
hse.gov.uk/toolbox

Occupational disease: HSE microsite
bit.ly/2KCLWNS

Lung disease: HSE microsite
hse.gov.uk/lung-disease/index.htm

Working with substances hazardous to health: A brief guide to COSHH
hse.gov.uk/pubns/indg136.pdf

COSHH Essentials (webtool)
hse.gov.uk/coshh/essentials/index.htm

Example COSHH risk assessments
hse.gov.uk/coshh/riskassess/index.htm

COSHH Approved Code of Practice
hse.gov.uk/coshh/further/publications.htm

Safe handling of chemicals poster
hse.gov.uk/pubns/chemicals-poster.htm

Clearing the air: a simple guide to buying and using local exhaust ventilation (LEV)
hse.gov.uk/lev

Construction dust
hse.gov.uk/pubns/cis36.htm

Dust control on cut-off saws used for stone or concrete cutting
hse.gov.uk/pubns/cis54.pdf

Control of exposure to silica dust. A guide for employees
hse.gov.uk/pubns/indg463.htm

Control of diesel engine exhaust emissions in the workplace
hse.gov.uk/pubns/books/hsg187.htm

Diesel exhaust in the workplace (TUC guide)
bit.ly/2HI2GYT

Breathe freely. A workers' information card on occupational asthma
hse.gov.uk/pubns/indg172.pdf

Lead and you: working safely with lead
hse.gov.uk/lead/resources.htm

Respiratory protective equipment at work. A practical guide
www.hse.gov.uk/pubns/books/hsg53.htm

Is your mask protecting you?
hse.gov.uk/pubns/indg460.htm

Preventing contact dermatitis and urticaria
hse.gov.uk/pubns/indg233.htm

Managing risks from skin exposure at work
hse.gov.uk/pubns/books/hsg262.htm

Skin checks for dermatitis poster
hse.gov.uk/skin/posters/skindermatitis.pdf

Controlling fire and explosion risks in the workplace. A brief guide to DSEAR
hse.gov.uk/fireandexplosion/dsear.htm

Managing asbestos in buildings. A brief guide
hse.gov.uk/asbestos/information.htm

Asbestos essentials. A task manual for building, maintenance and allied trades of non-licensed asbestos work
hse.gov.uk/pubns/books/hsg210.htm

Breathe Freely – lung disease prevention (BOHS)
www.breathefreely.org.uk

Welding Fume Control Selector Tool (BOHS)
www.breathefreely.org.uk/WST/

Occupational health toolkit (IOSH)
bit.ly/2JhSDEq

No Time to Lose (IOSH work cancer campaign)
notimetolose.org.uk

Further information

BOHS (British Occupational Hygiene Society)
Professional body for occupational hygienists, who specialise in preventing work-related ill health caused by exposure to hazardous substances and agents, such as chemicals, fumes and dusts. Website contains a directory of consultants who can help employers to control exposure to hazardous substances.

bohs.org

Breathe Freely
Campaign run by BOHS that provides free online guidance on preventing and reducing work-related lung disease in the construction and manufacturing industries. The website features factsheets, guides and toolkits for employers and workers on how to reduce exposure to harmful substances such as construction dust, asbestos fibes and welding fumes.

www.breathefreely.org.uk

British Safety Council
Offers a range of training courses and qualifications for managers and workers on how to protect everyone at work from exposure to hazardous substances. This includes e-learning courses on working safely with harmful substances and training on how to carry out a COSHH risk assessment.

www.britsafe.org

British Safety Industry Federation (BSIF)
Trade body representing PPE manufacturers and suppliers that strives to ensure high standards in the supply and use of all forms of PPE. The BSIF runs the Clean Air – Take Care! campaign that aims to raise awareness among RPE users, employers, fit testers and advisors on the correct selection and use of RPE. The campaign offers guidance on the correct use of RPE.

bsif.co.uk
fit2fit.org

Fit for Work
Government-funded website that provides employers, employees and GPs in England and Wales with free online advice on how to help sick and injured workers remain in and return to work.

fitforwork.org

Health and Safety Executive (HSE)
Responsible for enforcing health and safety law at most industrial workplaces in the UK. Offers a wide range of online guidance and advice on managing a wide variety of health and safety risks.

hse.gov.uk

Health and Safety Executive for Northern Ireland
Enforces health and safety law in Northern Ireland. Also offers guidance for employers.

hseni.gov.uk

Healthy Working Lives (Scotland)
Free health and safety advice service for Scottish employers.

healthyworkinglives.scot

Healthy Working Wales
Free health and safety advice service for employers and employees in Wales. Website provides a variety of guidance to help employers improve the health, safety and welfare of their employees.

www.healthyworkingwales.wales.nhs.uk/home

No Time to Lose
IOSH campaign designed to help employers prevent and reduce cases of occupational cancer. Website provides free guidance on preventing and reducing exposure to carcinogenic substances and hazards, such as asbestos, diesel engine exhaust emissions and silica dust.

notimetolose.org.uk

Trades Union Congress (TUC)
Helps trade union safety representatives manage risks to workers' health, safety and welfare.

tuc.org.uk

The 'Gold Standard' in health and safety qualifications

NEBOSH National Diploma in Occupational Health and Safety

Expert tuition, intensive examination preparation and exceptionally high pass rates.

Live Online courses start:
19 April 2021
11 October 2021

nebosh

LEARNING PARTNER GOLD 658

Book now:
T +44 (0)20 8600 5542
www.britsafe.org/nebosh-diploma

MT203

DEMOLITION SAFETY AWARENESS

WORKFORCE TRAINING THAT MATTERS

Get the right CCDO card for the job.

Get the skills and knowledge to stay safe on site.

Get your training up to date.

ndtg

National Demolition Training Group
TRAINING THE DEMOLITION INDUSTRY

Need Demolition Training? Think NDTG

01442 217 144 (Option 2) demolition.training hello@ndtg.training