

HEALTH AND SAFETY
GUIDANCE NOTE
**SUBSTANCES
HAZARDOUS
TO HEALTH**



NFU Mutual
Risk Management Services

INTRODUCTION

The Control of Substances Hazardous to Health Regulations 2002 (COSHH) as amended [Control of Substances Hazardous to Health Regulations (Northern Ireland) 2003] are the main pieces of legislation covering control of the risks to employees and others arising from exposure to harmful substances generated out of or in connection with any work activity under the employer's control. The main objective of the Regulations is to reduce occupational ill health by setting out a simple framework for controlling hazardous substances in the workplace.

No work that is liable to expose anyone to substances hazardous to health may be undertaken unless an assessment of the risks has been made.

The Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002 relate to the risk(s) associated with dangerous substances which could, under normal atmospheric conditions, form an explosive atmosphere. This guidance note does not cover the specific requirements of these regulations.

- Any substance not mentioned above but which creates a hazard to health comparable to those mentioned above – e.g. gases such as nitrogen, argon and helium, which whilst not dangerous in themselves, can endanger life by reducing the amount of oxygen available to breathe, pesticides, medicines or substances produced in chemical processes.

COSHH applies to virtually all substances hazardous to health except:

- Asbestos and lead, which have their own regulations;
- Substances which are hazardous only because they are radioactive, at high pressure, at extreme temperatures, or have explosive or flammable properties. Again, other regulations apply to these risks;
- Biological agents that are outside the employer's control, e.g. catching an infection from a colleague at work.

Substances used in, or generated by, a work activity may be in any form, e.g. solid, liquid, gas, fume, vapour, dust, etc. and may present a hazard to health by a number of means, e.g. skin absorption, injection, inhalation or ingestion.

WHAT ARE SUBSTANCES HAZARDOUS TO HEALTH?

A substance hazardous to health is defined as:

- One that has already been classified as being very toxic, toxic, harmful, corrosive or irritant under the CLP regulations (see section on Hazard Classification);
- A substance which has been assigned a Workplace Exposure Limit (WEL) – as listed in the HSE publication EH40/2005 (see 'Further Guidance');
- A substance that is carcinogenic, mutagenic or toxic for reproduction;
- A biological agent – e.g. bacteria and other micro-organisms if they are directly connected with the work, such as with farming, sewage treatment or healthcare, or if the exposure is incidental to the work such as exposure to bacteria from an air-conditioning system that is not properly maintained;
- A dust in substantial concentration in air - e.g. wood dust, grain dust, stone dust;

WHAT TYPES OF OCCUPATIONAL HEALTH ISSUES CAN ARISE FROM EXPOSURE?

The use of, or exposure to, hazardous substances at work can put people's health at risk. The effects from such substances include for example:

- Skin irritation or dermatitis as a result of skin contact;
- Asthma as a result of developing an allergy to substances at work;
- Losing consciousness as a result of being overcome by toxic fumes;
- Cancer, which may appear long after the exposure;
- Infection from bacteria and other micro-organisms.

WHAT ARE MY LEGAL RESPONSIBILITIES?

The COSHH Regulations require you to prevent or reduce risks to health and safety from exposure to hazardous substances at work. As an employer you have to:

- Carry out an assessment of the risks from hazardous substances in your workplace;
- Take action to prevent or adequately control exposure;
- Ensure that your control measures are maintained and subject to regular examination and tests, e.g. local exhaust ventilation (LEV), personal protective equipment (PPE) etc.;
- Monitor exposure to your employees, where required;
- Conduct health surveillance of your employees, where required;
- Provide information, instruction and training;
- Develop and implement arrangements to deal with accidents and emergencies.

HOW DO I CARRY OUT A COSHH ASSESSMENT?

Following the steps below will help you to carry out your COSHH assessment.

1 Identify your hazardous substances and how they are used or generated - The starting point in the assessment process is to establish what activities involve the use or generation of hazardous substances.

Examples include:

- Handling and application of chemicals, e.g. solvents, paints, pesticides etc.;
- Use of oil and grease when maintaining vehicles;
- Exposure to dust or fumes, e.g. woodworking, welding, grain dust, spray painting etc.;
- Exposure to zoonotic disease when working with animals;
- Use of veterinary medicines;
- Exposure from toxic gases released from landfill sites, slurry pits, anaerobic digestion plant etc.

When establishing what the activities are, it is important to remember unusual situations such as spillages or maintenance activities.

2 Gather information about the substances -

The next stage in the assessment process is to collect information about the substances, i.e. the harm they can do and how this can occur.

Typical information required includes:

- The form of the substance, e.g. liquid, solid, gas, vapour, aerosol, etc.;
- The quantity of the substance used or generated at any one time or over a period of time;
- The temperature at which the substance is used or processed;
- How the substance is used, e.g. sprayed, pumped, poured, painted, applied with a brush, etc.;
- The hazard classification of the substance, e.g. corrosive, harmful, toxic. This information is obtainable from a variety of sources including:
 - The label on the container. (If a substance is in any way hazardous, it is a legal requirement to provide essential safety data on the label);
 - Material safety data sheets (MSDS), which must legally be provided by the manufacturer or supplier of the substance;
 - HSE Guidance notes and other publications;
 - Technical reference sources, e.g. textbooks, scientific / technical papers, trade journals, etc.;
 - Professional institutions and trade associations.

- The routes of exposure or a combination of routes
 - how exposure might occur, e.g. breathing in gases / fumes / mist or dust, contact with the skin, swallowing, contact with the eyes, skin puncture, etc.

The hazard information on safety data sheets and labels is often supplemented by Risk and Safety Phrases, which include information about routes of exposure and preventative measures.
















HAZARD CLASSIFICATION

Recently the law regarding the labelling, classification and packaging of hazardous substances has changed. All over the world there were different laws on how to identify the hazardous properties of chemicals (called ‘classification’) and how information about these hazards is then passed to users (through labels and safety data sheets for employees). Given the expanding international market in chemical substances and mixtures, to help protect people and the environment and to facilitate trade, the United Nations has developed a ‘Globally Harmonised System’ (GHS) for classification and labelling.

This has been translated into the Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation), which applies to all EU member states, including the UK. The regulations place duties mainly on suppliers of hazardous materials.

If a dangerous chemical is supplied in a package, it must be labelled and the chemicals packaged safely to withstand the conditions of supply and carriage. The prime function of a supply label is to warn and inform the user of both acute (immediate, short-term) and chronic (long-term) exposure hazards.

One of the elements of a supply label is the hazard pictogram. The CLP Regulations have brought about a change in the pictograms that are included in the supply label.

Old Symbol	New Symbol*	Meaning
		Explosive: May react exothermically with atmospheric oxygen, thereby quickly evolving gases, which may detonate or upon heating explode.
		Oxidising: Gives rise to highly exothermic reactions in contact with other substances, particularly flammable substances.
		Flammable: Substances may become hot and catch fire in contact with air or a source of ignition; liquids with a very low flash point; substances which in contact with damp air or water evolve flammable gases.
		Corrosive: Substances which may, on contact with living tissues, destroy them.
		Irritant: May cause inflammation of the skin or mucous membrane through immediate, prolonged or repeated contact.
		Toxic: May cause death or acute chronic damage to health when inhaled, swallowed or absorbed via the skin.
		Harmful: May cause death or acute chronic damage to health when inhaled, swallowed or absorbed via the skin.
		Dangerous to Environment: Presents or may present an immediate or delayed exposure danger for one or more parts of the environment.
		Gas under pressure: Contains gas under pressure that may explode when heated.
		Caution: Health hazards such as skin irritancy/sensitisation.
		Longer term health hazard: Serious longer term health hazards such as carcinogenicity and respiratory sensitisation.

WHAT IS THE DIFFERENCE BETWEEN A SAFETY DATA SHEET AND A COSHH ASSESSMENT?

A safety data sheet is the substance as supplied to you. The COSHH Assessment is about what you are doing with it. An example is a hazardous concentrated cleaner, which you may dilute down to a weak solution for employees to use. The diluted mixture might no longer be considered hazardous to the employees using it. The COSHH Assessment should cover the diluting task rather than its use as a non-hazardous cleaner.

3 Identify who is at risk of exposure - When establishing who may be harmed by exposure to a hazardous substance it is necessary to consider both those directly involved with the activity, e.g. employees, cleaners, etc., as well as those indirectly involved, e.g. visitors, public, maintenance staff, etc.

Special consideration should be given to vulnerable employees, e.g. young persons, lone workers, new or expectant mothers and employees with disabilities, allergies, etc.

4 Identify the current control measures - The next stage of the assessment process is to identify the control measures that are currently in place to protect the persons exposed to the hazardous substance(s). Current control measures may include physical controls (e.g. enclosure, Local Exhaust Ventilation, closed transfer systems, PPE, etc.), procedural controls (e.g. safe working procedures, information, instruction and training) or monitoring (e.g. air monitoring, health surveillance, etc.).

When detailing the physical controls it is important to include details of any maintenance and test schedules.

5 Assess the risk of exposure - Having established what the current control measures are, the next stage is to decide whether they reduce the risk of harm to the persons exposed to an acceptable level. When establishing how effective the control measures are at reducing the risk, it is important to consider factors such as whether the control measures are suitable for the type of hazard, they

are used by the persons at risk and they are adequately maintained.

Specific guidance on how to conduct risk assessments is also provided in a separate guidance note.

For particularly hazardous substances, e.g. those that cause cancer, heritable genetic damage or asthma, you must ensure that the exposure is reduced to as low a level as is reasonably practicable. For carcinogens (substances which may cause cancer) or mutagens (substances which may cause heritable genetic damage) special requirements apply. These are outlined by the HSE on their website.

6 Decide on any further action that may be required - If it is decided that the current control measures do not provide sufficient protection to the persons exposed, then further action is required. When considering what further action is required (if any) the following hierarchy of control measures should be considered:

- Elimination – the best way to reduce the risks connected with the hazardous substance(s) is to remove the need to use those substances, e.g. by changing the process or product.
- Substitution – if elimination is not possible, then the substitution (or replacement) of the hazardous substance with one that is less dangerous is the next best option.
- Control – if a substance or process cannot be eliminated or substituted, then exposure may be prevented or reduced by:
 - Enclosure of the process;
 - Control of the emission by better management of the processes, e.g. use pellets instead of powder;
 - Technical solutions to minimise the concentration in the exposure zone, e.g. local exhaust ventilation such as dust extraction;
 - Organisational measures such as minimising the number of exposed employees and the duration and intensity of the exposure;
 - Use of PPE - but only as a last resort and never as a replacement for other control measures which are required.

The 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.

7 Record the assessment - A COSHH Assessment form (a template of which is provided at the end of this guidance note) can be used to record the findings of the assessment and be kept on file. The records should be kept in order to be used in reviews of the assessments, to be shown to enforcement officers and to be used as evidence in any civil liability actions.

Whilst every business is required to undertake a COSHH assessment, this does not need to be in writing if there are less than five employees. However recording significant findings of the assessment, as a reference document, will help to ensure that control measures are introduced and maintained and it will also serve as proof that an assessment has been carried out.

8 Review the assessment - Once the additional control measures are implemented, the COSHH assessment process should be repeated to check that the risk has actually been reduced to the lowest practicable level. Further control measures will be needed if this is not the case.

COSHH assessments should be reviewed on a regular basis (e.g. annually, but there is no set frequency for carrying out a review) and a review should also take place when there have been significant changes - e.g. as a result of:

- New equipment;
- New substances;
- New procedures;
- Advances in technology;
- Incidents or a case of ill health.

Remember to amend your assessment as a result of your review.

EXPOSURE MONITORING AND HEALTH SURVEILLANCE

The COSHH Regulations require you to conduct exposure monitoring for certain hazardous substances, e.g. where a Workplace Exposure Limit (WEL) has been assigned. Exposure monitoring means using suitable techniques to assess the extent of employees' exposure to substances hazardous to health via all routes (inhalation, ingestion and/or skin). The information gathered during exposure monitoring can help you assess whether your exposure controls are adequate.

Exposure monitoring should be conducted where:

- Your COSHH assessment shows that an initial exploratory monitoring exercise is necessary to reach an informed and valid judgement about the risks;
- There could be a serious risk to health if control measures failed or deteriorated;
- Workplace exposure limits might be exceeded;
- Control measures might not be working properly.

However, you do not need to do this if you can show by another method of evaluation that you are preventing or adequately controlling employees' exposure to hazardous substances, e.g. a system is completely enclosed, you have alarm systems that alert of any leaks, etc. The COSHH Approved Code of Practice provides examples of other alternative methods of evaluation (see 'Further Guidance').

The COSHH Regulations also require you to carry out health surveillance in the following circumstances:

- Where an employee is exposed to one of the substances listed in Schedule 6 of the Regulations and is working in one of the related processes;
- Where employees are exposed to a substance linked to a particular disease or adverse health effect and there is a reasonable likelihood of the adverse health effect occurring and it is possible to detect the disease or health effect.

Further guidance on health surveillance is provided in the Occupational Health and Stress Guidance Note.

INFORMATION, INSTRUCTION, TRAINING AND SUPERVISION

Where employees are likely to be exposed to hazardous substances, you need to provide them with training so that they understand the risks they may be exposed to, and their duties and responsibilities.

The information, instruction and training should at least include the following:

- Details of the substances hazardous to health to which the employee is liable to be exposed;
- The significant findings of the COSHH assessment;
- How to use control measures properly, and how to check that they are working;
- The defined methods of work;
- How to wear their PPE correctly and how to take it off again without causing exposure. (For further guidance on PPE, see the Guidance Note – Personal Protective Equipment);
- If employees need to use respirators, they also need face fit testing and training on how to use them;
- The results of any exposure monitoring and health surveillance, without giving individual employees' names. (For further guidance on health surveillance, see the Guidance Note – Occupational Health and Stress);
- Emergency procedures which need to be followed - carry out practice drills for cleaning up spills safely. (For further guidance, see the Guidance Note - Emergency Procedures);

These requirements are vital. You must ensure your employees understand the risks from the hazardous substances they could be exposed to. Your control measures will not be fully effective if your employees do not know their purpose, how to use them properly or the importance of reporting faults.

It is important that workers are appropriately supervised. Effective supervision can help you monitor the effectiveness of the training that people have received, and whether employees have the necessary competence to do the job.

ARRANGEMENTS TO DEAL WITH ACCIDENTS, INCIDENTS AND EMERGENCIES

The COSHH Regulations define an accident, incident or emergency as any event which causes, or threatens to cause, any employee to be exposed to one or more hazardous substances on a scale well beyond that associated with normal day-to-day activity.

Examples of this sort of event include:

- Any process fire which could give rise to a serious risk to health;
- Any serious spillage or flood of a corrosive substance where it could make contact with the skin;
- Any failure to contain biological, carcinogenic, mutagenic or sensitising substances;
- Any acute process failure that could lead to a sudden release of chemicals, e.g. a chemical reaction that results in toxic fumes being released;
- Any threatened significant exposure over a WEL, e.g. where the exposure is clearly the result of an unusual, sudden and serious failure of Local Exhaust Ventilation or other controls.

You must develop procedures to deal with any potential emergency events. The response to an emergency should be proportionate to the risk. So, you should decide what proportionate action is needed to deal with the situation, e.g. not all incidents will automatically require the evacuation of the workplace. You should ensure that regular practice drills are held so that everyone knows what to do in the event of an emergency.

Specific guidance on how to develop these types of procedures is provided in the Emergency Procedures Guidance Note.

FURTHER GUIDANCE

- HSE website 'COSHH essentials' www.hse.gov.uk/coshh/essentials/
- INDG136 Working with substances hazardous to health - a brief guide to COSHH
www.hse.gov.uk/pubns/indg136.pdf
- L5 Control of substances hazardous to health – approved code of practice and guidance
www.hse.gov.uk/pubns/priced/l5.pdf
- EH40/2005 Workplace exposure limits www.hse.gov.uk/pubns/priced/eh40.pdf
- INDG408 Clearing the air - a simple guide to buying and using local exhaust ventilation (LEV)
www.hse.gov.uk/pubns/indg408.pdf

These documents are available to download free of charge from www.hse.gov.uk/pubns/books

COSHH ASSESSMENT TEMPLATE EXAMPLE

Company Name:		Date of assessment:	Review date:			
Area being assessed:		Assessor(s) name:				
No.	What hazardous substances are people at risk from?	Who is exposed? How are the substances a risk to health?	What controls are in place?	Level of exposure risk	Additional controls needed to reduce risk	Comments/ progress/ date completed

Signed: Print Name:

Position: Date:

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