

Guidance on COSHH Risk Assessment

COSHH stands for the [Control of Substances Hazardous to Health](#), first introduced in 1988 by the Health and Safety Executive ([HSE](#)). Aiming to reduce accidents and minimise the risk to employee health in the workplace, COSHH was introduced to ensure any business using hazardous substances does so in a controlled and safe way. 30 years on, however, the guidance is still misunderstood.

Some effects of hazardous substances include:

- Lung damage - Chronic Obstructive Pulmonary Disease (COPD) / Occupational asthma, as a result of inhalation of substances used at work;
- Skin irritation or dermatitis as a result of skin contact;
- Losing consciousness as a result of being overcome by toxic fumes;
- Cancer, which may appear long after the exposure to the chemical that caused it;
- Infection from bacteria and other micro-organisms (biological agents).

It's important that all businesses, and even those individuals who are self-employed, take the necessary steps to protect themselves. COSHH applies to all industries using harmful substances including: catering, baking, beauty and hairdressing, cleaning, agriculture, quarries, engineering, manufacturing, motor vehicle repair etc.

Besides substances for which a Safety Data Sheet (SDS) is provided, processes that generate harmful substances must also be considered eg Respirable Crystalline Silica (RCS) from stone works; Diesel Engine Exhaust Emissions (DEEEs) from vehicles; welding fume; woodworking dust, etc.

Why is COSHH Important?

The purpose of COSHH is to protect the well-being of employees, which is required by law.

It guides you through evaluating the risks in your business and how you can best control or prevent them. Health monitoring, assessment of procedures and equipment should be undertaken regularly to ensure you uphold your compliance with COSHH. Most businesses will work with some substances which pose a risk to health; even exposures to general dusts - or products such as mild cleaning agents can be hazardous to employees if not used correctly.

The 8 steps you can take to ensure you are compliant with COSHH are:

- Step 1. COSHH Risk Assessment;
- Step 2. Precautions;
- Step 3. Prevention or Adequate Control of Exposure;
- Step 4. Maintenance of Control Measures;
- Step 5. Monitoring exposure; to comply with COSHH;
- Step 6. Health Surveillance;
- Step 7. Creating Plans and Procedures;
- Step 8. COSHH Training.

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Step 1. COSHH Risk Assessment

The risk assessment will identify all harmful substances which can damage health and the tasks where there is exposure to these materials such as:

- Substances used directly in work activities (eg adhesives, cleaning agents, paints, solvents / VOCs / isocyanates)
- Substances generated during work activities (eg fumes from soldering and welding; Diesel Engine Exhaust Emissions including gases CO₂, CO, NO₂, NO and elemental carbon etc)
- Naturally occurring substances (eg grain /flour dust; crystalline silica)
- Biological agents such as bacteria / moulds and other micro-organisms

Identify who should carry out your assessment

Employers may carry out the assessment themselves or delegate to a member of staff who has the knowledge and experience. This could include qualifications, practical experience of the circumstances and any training in occupational hygiene. Be mindful that the individual risk or situation will determine how extensive their abilities need to be.

If you don't have the necessary skills in-house, you can enlist the help of expertise from outside your business.

Your risk assessment will need to:

- Identify and list all hazardous substances in the workplace – they may not always be labelled as harmful or be a part of a process
- Evaluate the implications to health of each substance
- Assess who may be affected and how
 - Don't forget to think about contractors or anyone else who could be exposed
 - Exposure routes include – by breathing in dust, gas or mist, by skin contact or by swallowing
- Record all your findings eg an example COSHH Assessment form is provided at the end of this article. Note a Safety Data Sheet is NOT a COSHH assessment, but it does contain useful information to complete the assessment.

You do not necessarily need a qualification to carry out a COSHH risk assessment; however the HSE outlines the basic skills required.

Step 2. Precautions

If you identify risks from your initial assessment, you should review precautions you can take to remove the risk or whether it's possible to change internal processes.

Ask yourself:

- Can we use an alternative?
- Can we change our process to eliminate the hazardous substances?
- What control measures do we already have in place and do they work?

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You should compare any control measures you have already with the following:

- HSE COSHH guidelines
- Substance substitution
- Workplace exposure limits (WELs)
- Check with your chemical supplier / manufacturer for advice on storage and handling

Think about the necessary precautions you need to take to protect your employees. If you can't eliminate the hazard, controlling exposure is crucial.

Step 3. Prevention or Adequate Control of Exposure

If you can't eliminate the risk, control measures should be put in place for each risk-based activity you identified in your assessment.

Here are some examples of what you need to think about when putting these measures in place:

- What processes, systems or engineering controls (Local Exhaust Ventilation – LEV) can you use that minimise the amount of hazardous material used or produced?
- What equipment can you use that completely isolates the hazard?
- How can you control the exposure at the source? Can you implement a ventilation system which extracts fumes, such as LEV?

	<p>Local Exhaust Ventilation – LEV</p> <p>The extraction hood must be placed local to the source of emission, to collect the fume and control exposure by inhalation.</p> <p>The welder here is clearly not using the LEV system appropriately to reduce his exposure so his training is questionable and he is putting his own health at risk.</p>
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The HSE has recently announced some important news, on raised control standards for welding fumes. On 14 January 2019, the HSE shared with the Industry and Regulatory Forum on LEV that they have raised enforced control measures for welding operations in the UK.

This follows an announcement from the International Agency for Research on Cancer (IARC), who classified welding fumes and UV radiation from welding as Group 1 carcinogens. IARC published their findings in Lancet Oncology in 2017 in a paper titled 'Carcinogenicity of welding, molybdenum trioxide, and indium tin oxide'. The raised enforced control standards are detailed below:

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- All forms of welding fume can cause cancer
- Control is required
- Indoor welding tasks require the use of LEV. If LEV is unable to control fume capture then Respiratory Protective Equipment (RPE) is also required
- Outdoor welding requires use of RPE
- Enforcement of the raised control standards is with immediate effect under COSHH Regulation 7

Your control measures will depend entirely on the hazard itself. Adequate control under COSHH means:

- Apply the 8 principles of COSHH
- Do not exceed the WEL
- If the substance causes cancer, heritable damage or asthma, reduce exposure to as low as reasonably possible.

HSE provide details on adequate control including how to use, store, label and dispose of dangerous substances.

Step 4. Maintenance of Control Measures

COSHH requires that you maintain your controls so they perform to the same standard as when they were initially introduced. You will need to:

- Train employees on how to use control measures
- Ensure they are aware of how to report problems
- Regularly check procedures and equipment

This will involve making sure any protective clothing, equipment or systems are regularly tested and perform to the original standard. LEV systems must be thoroughly examined and tested at least every 14 months. You must retain all tests and examinations records for *at least 5 years*.

Step 5. Monitoring Exposure

To comply with COSHH, you may need to measure the concentration of hazardous substances in the air which could be breathed in by workers, where your risk assessment has concluded that:

- Exposure limits may be surpassed
- Control measures aren't working properly
- There is a serious risk to health if control measures fail

Before monitoring, you should be familiar with the exposure limits. A WEL is the maximum concentration of an airborne substance over a specified time period, to which a person can be exposed.

There are two forms of monitoring airborne substances:

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- Personal monitoring – this establishes the concentration of an airborne substance within an employee’s breathing zone. The sample should be taken from the breathing zone around the employee’s face and is directly comparable to the WEL.
- Fixed place monitoring- can be at the source of emission, or another area of the workplace away from the hazard – this can help determine if your control measures are effective, but cannot be directly compared to the WEL as it does not measure an individual’s exposure.

In order to measure exposure, the substance has to have significant usage in the workplace, with monitoring times typically around four hours minimum, during the period of use. You need to keep and maintain any records of exposure monitoring you carry out and allow employees access to their personal record.

For detailed information on monitoring strategies of harmful substances, review the HSE [guide to monitoring toxic substances](#).

Step 6. Health Surveillance

After taking the steps outlined above, it will be apparent where some risk remains. If the risk remains where:

- an employee is exposed to one of the substances listed in COSHH regulations [medical surveillance schedule 6 \(page 92\)](#), or
- an employee is exposed to a substance linked to a disease, and it is likely, due to work conditions that this disease could occur;

then health surveillance should be a regularly planned assessment and health records need to be kept for at least 40 years.

The surveillance may involve:

- Examining an employee’s skin for conditions such as dermatitis
- Assessing their breathing, where work may involve substances causing asthma
- A health assessment to identify any disease which could appear when using a particular substance.

Assessments should be carried out by an occupational health service physician or GP who is competent in occupational medicine.

The HSE provides various [guidelines on surveillance](#) for different circumstances.

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Step 7. Creating Plans and Procedures

In the event of an accident or emergency, you need to have the necessary processes in place to handle such a situation. This involves planning for an emergency whereby the exposure to dangerous substances goes far beyond day to day contact.

You will need to:

- Plan and set up warning and communication systems
- Ensure all information is available to those who should be aware – this may include emergency services.
- Practise safety drills with all staff regularly
- Have a plan in place which outlines the steps involved to reduce the harmful effects, restore the situation to normal and inform employees who are affected.
- Ensure you have the necessary safety equipment.

The above must be complied with in full where carcinogens, mutagens or biological agents are used.

Step 8. COSHH Training

All employees need to be properly trained and provided with the relevant instructions. You are responsible for ensuring they are fully trained on the following:

- Access to safety datasheets and the COSHH assessments
- The names of the substances they work with and the risks to health
- The findings of your risk assessment
- Precautions they need to take to protect themselves and others
- How to properly use the PPE clothing they're supplied with
- Results of exposure monitoring and health surveillance
- Fully understanding control measures, how to use them and how to report faults
- Emergency procedures

This information and employee training should be reviewed and updated when necessary.

If any changes occur to the type of work, method or substance used, you will need to undergo the steps outlined in this document; then the relevant documentation and training should be updated.

SOCOTEC's qualified occupational hygienists can provide a full service from hazard identification and monitoring to quantifying exposure and recommendations to improve exposure controls, as well as assistance with the COSHH assessment process.

For more information, please [get in touch](#) or call 0845 603 2112.

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	COSHH Risk Assessment No: Complete / Tick ✓ all Boxes as appropriate.						
	Location / Address:		Establishment / Section:				
Describe the activity or work process. <i>(Include how long and how often this is carried out and the quantity of substance used)</i>							
Location of process being carried out?							
Identify the persons at risk:		Employees <i>(including trainees)</i> <input checked="" type="checkbox"/>	Contractors <input checked="" type="checkbox"/>	Public <i>(including students)</i> <input type="checkbox"/>			
Name the substance involved in the process and its manufacturer. <i>(A copy of a current safety data sheet for this substance should be attached to this assessment, if available)</i>							
Classification (state the category of danger)							
	Toxic <input checked="" type="checkbox"/>		Health Hazard <input checked="" type="checkbox"/>		Harmful <input checked="" type="checkbox"/>		
	Corrosive <input checked="" type="checkbox"/>		Oxidising <input type="checkbox"/>		Environmental Hazard <input checked="" type="checkbox"/>		
	Flammable <input type="checkbox"/>		Explosive <input type="checkbox"/>		Compressed Gas <input type="checkbox"/>		
Hazard Type							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other (State)
Route of Exposure							
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inhalation	Skin	Eyes	Ingestion	Other	(State)		
Workplace Exposure Limits (WELs) please indicate n/a where not applicable							
Long-term exposure level (8hrTWA): Total inhalable dust 10 mg/m³ Respirable dust 4 mg/m³				Short-term exposure level (15 mins):			
State the Risks to Health from Identified Hazards							

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Control Measures: (for example extraction, ventilation, training, supervision). Include special measures for vulnerable groups, such as disabled people and pregnant workers. Take account of those substances that are produced from activities undertaken by another employer's employees.

Is health surveillance or monitoring required?

Yes No

Personal Protective Equipment (state type and standard)

 Dust mask		 Visor	
 Respirator		 Goggles	
 Gloves		 Overalls	
 Footwear		 Other	

First Aid Measures

Storage

Disposal of Substances & Contaminated Containers

Hazardous Waste Skip Return to Depot Return to Supplier Other

(If Other Please State):.....

Is exposure adequately controlled?

Yes No

Risk Rating Following Control Measures

High Medium Low

Name:	Date:
Signature:	Review Date: