



Health & Safety Control of Substances Hazardous to Health (COSHH)

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¹ or earlier if change in legislation or on risk assessment

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Policy Summary

The University uses a variety of substances that may be classified as hazardous.

COSHH which stands for the Control of Substances Hazardous to Health is a set of regulations in place to protect workers from ill health when working with specific substances and materials.

This policy aims to cover all aspects of the COSHH regulations including the legal aspects of COSHH as well as the university's responsibilities. Hazardous substances can be present in all areas of the workplace and the COSHH regulations apply not only to pure laboratory chemicals but substances such as cleaning materials, paints, lubricants, oils etc. are also covered.

The regulations also include mixtures of compounds, micro-organisms and natural materials such as flour, stone or dust as well as gases, vapours and mists. Bodily fluids such as blood, faeces, urine, vomit and saliva are classified as hazardous and are also included in the regulations.

Schools/Service areas are required to identify which substances are hazardous and, by introducing control measures, reduce or eliminate any exposure to staff, students or other individuals working in their area.

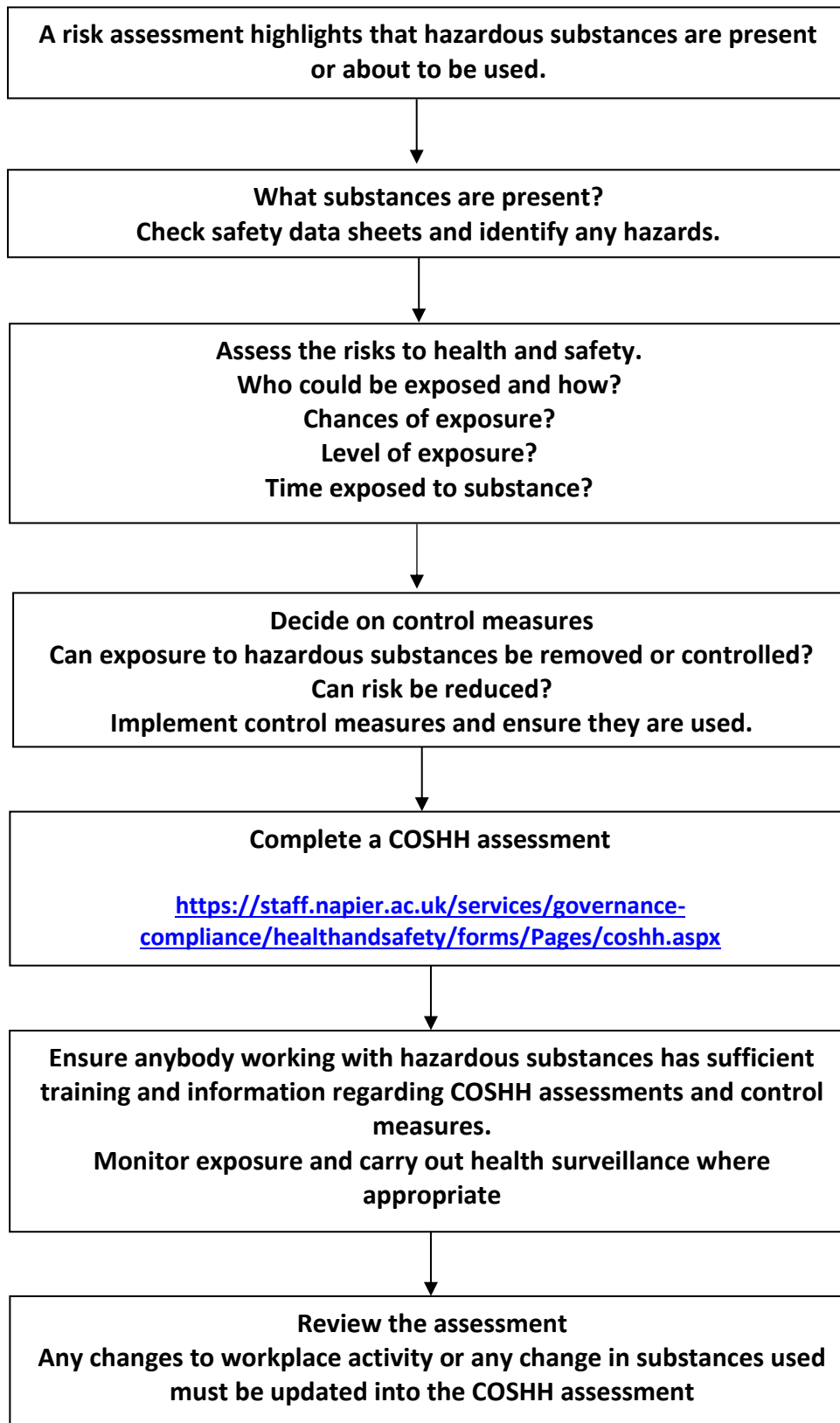
Monitoring exposure and providing health surveillance checks are also a key part of the COSHH guidelines.

This policy is a guide to working safely within the COSHH regulations, how to identify hazards, reduce risks and complete a COSHH assessment. The policy contains information regarding specific work areas within the university and is aimed at any individuals working with hazardous substances.

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COSHH Flowchart



1 Introduction

COSHH is the way we risk assess hazardous substances in the workplace. The COSHH regulations are in place to protect the health of staff, students and other individuals including contractors who may be affected by the university's work involving hazardous substances. The main purpose of COSHH is to manage the risks to health that are generated from working with these substances.

Hazardous substances used or created at work that could be harmful include anything from paints and cleaning materials to blood and waste. Dusts, gases, fumes that you breathe in or liquids, gels or powders that come into contact with eyes or skin can all be harmful.

Hazardous substances can be:-

- Solids
- Liquids
- Gases
- Fumes
- Vapours
- Mists
- Dusts
- Fibres
- Biological agents such as bacteria and viruses
- Bodily fluids such as blood, faeces, urine, vomit or saliva

All substances that fall within the COSHH regulations must be risk assessed

The COSHH regulations require Schools/Service areas to:-

- Assess the risks to health and safety.
- Decide what precautions (control measures) are required to prevent ill health.
- Prevent or control exposure.
- Make sure that the control measures are used and maintained.
- Ensure that all employees are properly informed, trained and supervised where appropriate.
- Monitor exposure and carry out health surveillance where appropriate.

Schools/Service areas must control exposure to materials that cause ill health in the workplace. This not only applies to employees but to others who may be on campus such as students, visitors or contractors. To meet the requirements of the regulations you must understand the possible ways in which staff, students and other individuals could be exposed and the types of controls required to be in place.

2 COSHH and the Law

COSHH is the law that requires employers to control exposure to substances that are hazardous to health. A COSHH assessment is a risk assessment which focuses on specific hazards and risks from hazardous substances in your workplace.

A COSHH assessment is a legal requirement

Under the Control of Substances Hazardous to Health Regulations COSHH assessments are required by law for any substances that are hazardous to health. So the use (or production) of any substances hazardous to health requires assessment under the regulations.

Note – a Material Safety Data Sheet is not a COSHH assessment

Under the COSHH regulations you cannot carry out work that exposes your employees to hazardous substances unless you have assessed the risk first. Failure to comply with the COSHH regulations can have serious consequences for both the university and individual workers.

The University Health & Safety Team will carry out inspections and any deficiencies will be reported with actions placed on the School/Service. In serious cases either prohibition or improvement notices will be issued and these will be communicated to senior management.

The Health and Safety Executive (HSE) can also carry out incident inspections on the workplace following an accident which may have caused:

- a fatality
- an injury
- a near miss (which may have resulted in injury)

They can also insist on an inspection if there has been a case of ill health, which may have been caused by workplace processes or exposure to a hazardous material and has been reported to the health and safety enforcing authority.

The HSE can place sanctions on the University and on work areas. These sanctions can include:-

- | | |
|-------------------------|--------------------|
| • Cautions | • Prosecutions |
| • Prohibition Notices | • Fines |
| • Improvement Notices | • Imprisonment |
| • Fee for Interventions | • Disqualification |

It is a legal requirement to report near misses, incidents, accidents, and dangerous occurrences. These require to be reported to the Health & Safety Team using the [downloadable form](#) and emailed to the Health and Safety Office.

3 Responsibilities

It is the responsibility of the School/Service area to ensure that:-

- COSHH assessments for any work involving hazardous substances are in place.
- The exposure to hazardous substances is eliminated completely or controlled.
- Control measures are in place to minimise exposure and reduce risk.
- Control measures are monitored and reviewed.
- Exposure levels are monitored and reviewed.
- The health of staff, students and other individuals who may be exposed to hazardous substances is monitored.
- All staff, students and other individuals working with hazardous substances must receive the relevant induction into the work area (laboratory, workshop etc.), information, instruction and training on the use of chemicals and also the relevant controls to safeguard users. This instruction/training could take the form of a material data sheet or a COSHH assessment.
- Any near misses, incidents, accidents or dangerous occurrences with chemicals are reported using the Health and Safety Team accident form - [Incident Report Form](#)
- Plans for emergencies, incidents and accidents are designed and implemented.

Staff, students, and other individuals working with hazardous substances in the university have the following responsibilities:

- Use any control measures that have been put in place.
- Report inadequate or defective equipment and/or control measures.
- Make use of, undertake any training and care for, all provided Personal Protective Equipment (PPE).
- Adhere to all COSHH training and information provided for you. Note - this can be eLearning and classroom-based training.
- Remove contaminated PPE before leaving the specialised area you are working in.

4 Definition of a Hazardous Substance

A hazardous substance is one with the potential to cause harm to health. Hazardous substances can include solids, liquids, gases, fumes, vapours, mists, dusts, fibres, as well as biological agents such as bacteria, viruses and bodily fluids.

Hazardous substances are classified on the basis of their potential health effects:

- Acute (immediate)
- Chronic (long-term)

Hazardous substances can harm an individual by causing damage to the:

- Skin
- Nose
- Mouth
- Eyes
- Lungs

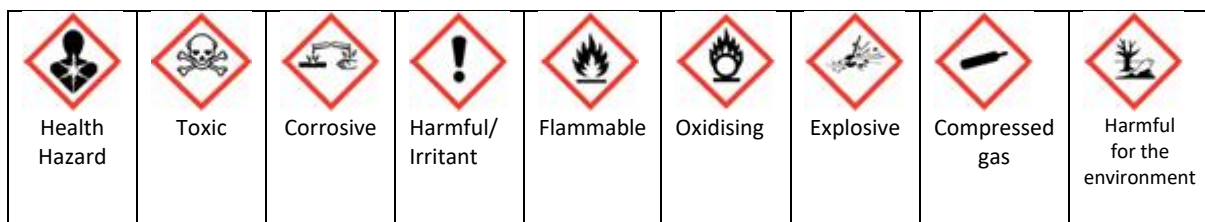
- Internal organs
- Genes
- Central Nervous System

Hazardous substances can harm workers through:

- Contact with skin (touch or spillage)
- Inhalation (breathing in vapours, mists, fumes, gases, or fine dusts)
- Ingestion (eating or drinking substances or foods contaminated by hazardous substances)
- Injection (a puncture in the skin or through a cut)

Hazardous substances can also cause harm due to combustion or explosion.

Hazardous substances will normally be classified and labelled as falling into one or more of the following groups:



A full definition of the hazardous pictograms can be found in Appendix 1.

When deciding whether the substances used or produced in the workplace are covered by COSHH, Schools/Service areas should also consider the following:

- Different forms of a substance may present different hazards, e.g. substances may not be hazardous in solid form but may be hazardous when ground into fine powder or dust that can be breathed into the lungs.
- Nanoparticles (i.e. particles less than 100 nanometres) may be more toxic than larger particles of the same chemical substance.
- Impurities in a substance can make it more hazardous.
- Some substances have a fibrous form which may present a potentially serious risk to health if the fibres are of a certain size or shape.
- Some substances have a known health effect but the mechanism causing it is unknown.
- Exposure to two or more substances at the same time or one after the other may have an added effect.
- One-off emergency situations arising out of the work activity, such as a dangerous chemical reaction or fire, could foreseeably produce a substance hazardous to health.
- 'Wet work' is one of the most frequently and consistently reported causes of irritant occupational contact dermatitis. 'Wet work' is the term used to describe tasks involving prolonged or frequent contact with water, particularly in combination with soaps and detergents.

- The potential for harm will depend on how often people work with the substances and for how long.
- Cleaning products, used to clean up spillages of hazardous materials such as blood, may be hazardous themselves and will require COSHH guidance and control measures to be in place.

Hazardous Substances not covered by COSHH

The following substances have their own unique set of regulations and are therefore not covered by COSHH:

- Asbestos
- Lead
- Radioactive substances

5 Hazardous Substances and COSHH

The COSHH Regulations cover pure laboratory chemicals but they also include other substances that some people may not realise can be hazardous to health.

These include:

5.1 Chemicals

- **Paints** – paints and coatings contain several substances that can lead to health problems including skin, eye and mucous membrane irritation, headaches, dizziness, sickness and lung disease.
- **Paint thinners** – the solvents used in paint thinners are potentially harmful and can include toluene, white spirit, acetone, xylene and ethyl acetate.
- **WD40** – the lubricant in WD40 is flammable and the effects of exposure can include dizziness, drowsiness and nausea.
- **Printer toner** – toner used by photocopiers and laser printers is a very fine powder. Exposure can occur when the cartridges are replaced. For people with medical conditions such as asthma or bronchitis this could be an irritant.
- **Petrol and diesel** – Petrol and diesel contain substances that may cause cancer. Care should be taken to avoid inhalation of their vapours.

5.2 Products containing chemicals

- **Cleaning materials** – some ingredients present in cleaning materials can cause skin allergies and asthma. Some are corrosive and can burn the skin and damage eyes.
- **Cement** – cement-based products like concrete or mortar can cause skin problems such as dermatitis or burns. The dust produced while cutting or drilling dry concrete and mortar can cause serious lung disease.

5.3 Dusts

- **Silica** – silica is found in most rocks, sand and clay. Silica dust, which can get into your lungs, is created in construction activities such as cutting, polishing, grinding and drilling.
- **Wood** – cutting and sanding wood using power tools can produce a lot of dust leading to health problems including asthma.
- **Plaster** – Gypsum or plaster of Paris is the most common type of plaster. Mixing dry plaster, sanding plastered surfaces and cutting plasterboard all lead to exposure to plaster dust which can be harmful and an irritant.

5.4 Vapours

- **Vapours** – inks, lacquers, adhesives and cleaning solvents contain substances which can be released as vapours. These products can get onto your skin causing irritation and dermatitis. They can also be absorbed through your skin causing damage and illness including asthma. They can be harmful through inhalation. Some vapours can lead to dizziness and drowsiness and they can affect the central nervous system. Long term exposure can damage internal organs such as your liver and your kidneys.

5.5 Bodily Fluids

- Blood, faeces, urine, vomit and saliva can carry harmful bacteria and viruses. The risks from them must be assessed and controlled in accordance with COSHH.
- Spillages of bodily fluids can present an infection risk and so should be treated, in all cases, as potentially infectious and appropriate precautions should be taken.
- Spillages of blood must be decontaminated with an appropriate disinfectant.
- Cleaning products such as disinfectant sprays and detergents, required to clean up any spillages, can cause irritation, dermatitis, skin allergies or asthma.
- Cleaning substances such as bleach are corrosive and can irritate or burn your skin and eyes. Bleach and other chlorine-releasing chemicals are hazardous and can cause harm through inhalation.

Care must be taken when cleaning up any spillages of substances such as blood, urine or vomit and PPE must be worn. Staff involved in any clean ups should be trained in the management of blood and bodily fluid spills and splashes. Spillages must be dealt with as soon as possible and not left. Any used gloves or cleaning materials such as blue roll or paper towels must be disposed of properly. Disposal of PPE and any cleaning materials must be detailed in the COSHH and Risk Assessment.

If there are any hazardous substances being used in the workplace unsafely, incorrectly or without correct control measures in place then this work must be stopped immediately and the substances made safe. The incident must be reported to the Health and Safety Office.

6 Workplace Exposure Limits

The Health and Safety Executive (HSE) has established Workplace Exposure Limits (WELs) for a number of substances hazardous to health. These are intended to prevent excessive exposure to specified hazardous substances by containing exposure below a set limit.

A WEL is the maximum concentration of an airborne substance averaged over a reference period to which employees may be exposed by inhalation.

WELs refer to concentrations of hazardous substances in the air that people breathe, averaged over a specified period of time referred to as TWA (Time Weighted Average).

The time periods are:

- Long term exposure limit (8 hours)
- Short term exposure limit (15 minutes)

Around 500 substances have WELs assigned to them and these hazardous substances could be:

- Chemicals
- Fumes
- Dusts
- Fibres

Note - WELs are a maximum exposure. Being under the limit does not necessarily make working with the hazardous substance safe.

And just because a substance does not have a WEL does not mean it is necessarily safe.

The WEL information can be found on the Material Safety Data Sheets (MSDS). If this is not available then an internet search on the specific substance you are using should uncover any safety information required including the safe WEL limit if there is one in place.

The Health and Safety Executive (HSE) website has an online booklet on Workplace Exposure Limits which you can download for free – [EH40/2005 Workplace exposure limits \(hse.gov.uk\)](https://www.hse.gov.uk/e40/2005-workplace-exposure-limits). This booklet provides exposure information for all substances with a workplace exposure limit.

7 The COSHH Assessment

School/Service areas are required to prevent or reduce exposure from hazardous substances to workers (staff, students and other individuals) by:

- Identifying any hazards.
- Identifying who is at risk and how they may be harmed.
- Evaluating the risks and deciding on control measures.
- Recording findings (Risk Assessment) and implementing them.
- Reviewing the assessment regularly and updating it if necessary.
- [COSHH assessment form](#).

7.1 Identifying hazards

Chemical hazard information regarding the hazards posed by chemical substances is available from a number of sources including:

Material Safety Data Sheets (MSDS)










Suppliers are required by law to provide up to date hazard information for their products which have been classified as hazardous. Safety data sheets must include information about the properties of a substance, the hazards posed, handling, storage, disposal and transportation instructions including exposure limits. A paper copy of the MSDS will be supplied with any new hazardous substance purchased. Should this be misplaced, or lost, electronic copies of the data sheets can be found on the supplier's websites. A database should be held for all substances in use – **see section 11**.

Note – MSDS documents will only be supplied with laboratory-based chemicals bought directly from suppliers. A Material Safety Data Sheet is **not** a COSHH assessment.

Container Labels

Suppliers must label a substance according to Classification, Labelling and Packaging Regulations EC 1272/2008. Container labels should contain the supplier contact information, the approved or trade name of the substance, the nominal quantity supplied and all relevant hazard statements, hazard pictograms, signal words and precautionary statements. Non-laboratory-based chemicals such as cleaning materials, oils etc. may have safety information written on the label or on the back of the bottle. They may also include hazard pictograms showing the hazardous nature of the substance.

Hazard Pictograms

								
Health Hazard	Toxic	Corrosive	Harmful/ Irritant	Flammable	Oxidising	Explosive	Compressed gas	Harmful for the environment

A full definition of the hazardous pictograms can be found in **Appendix 1**.

There are times when it can be more difficult to identify hazards:

- Some substances may not have labels such as older bottles (where labels have been worn away or are illegible).
- Some substances may not be in their original bottle/container.
- A substance may be the product/by-product of a chemical/laboratory process and are being stored in other containers such as flasks or beakers.
- There may be a spillage or leakage and the substance is unidentifiable.
- Other substances such as wood, metal or flour will not have a safety data sheet but can still be hazardous.

In the case of a substance having no label (or a label is illegible):

- Try looking at hazard information using the internet – often there is good information provided by relevant industry bodies.
- If the bottle is old or the substance is not in its original bottle it may be a good opportunity to dispose of the substance (see section 12 Disposal of Hazardous Substances).

- An unknown substance would have to be disposed of via a licensed contractor.
- Never use a substance if you are unsure of what it is or if it requires to be disposed of using the relevant waste disposal contractor. It may be a mixture of chemicals or an unlabelled one, treat it the same and dispose using the relevant waste disposal company.

A licensed contractor may request more information on the unknown substance such as:

- State (solid or liquid)
- If solid - is it granular or powder
- If liquid - is it viscous or watery
- Amount stored, volume, weight
- Colour - this may indicate impurities or contaminants
- What type of container etc.

7.2 Who is at risk and how they may be harmed

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 e.g. MSDS
- Asking the supplier or sales representative
- Internet search e.g. [HSE](#) (Health and Safety Executive)

Think about who is on campus

Who is working with hazardous substances?

- Technical staff
- Academic staff
- Other staff such as cleaning, catering, or facilities services staff
- Students
- Other people on campus e.g. visitors, contractors

Remember there may be other people on campus who might not be working with hazardous substances but could still be exposed to them and could suffer ill health e.g. staff, students, contractors or visitors exposed to hazardous smells or noxious gases.

Think about the task

If the substance is hazardous how might workers be exposed?

- Contact with the skin?
- Contact with the eyes?
- Swallowing?
- Breathing in gases, fumes, mists, or dusts?
- Skin puncture?

Remember the workplace activity or task may involve 2 or more substances being mixed together:

- Does this make the substance(s) more hazardous?
- What about by-products created in the process?
- What about any waste products created in the process?
- What about spillages or accidental release?

- Think about storage? How are substances being stored? Are they being stored safely? What about products from chemical reactions – how do you plan to store these?

The guidelines for safe storage of hazardous substances is as follows:

- **Segregation** – segregate incompatible hazardous substances from each other.
- **Separation** – separate hazardous substances from unsuitable conditions.
- **Ventilation** – to provide ventilation to remove malodorous, noxious, toxic, or flammable vapours of hazardous substances.

See [Hazardous Substances Policy \(Safe Purchase, Storage and Disposal\)](#)

7.3 Evaluating the Risks and Deciding on Control Measures

At Edinburgh Napier University we calculate risk as either a:

- Low Risk
- Medium Risk
- High Risk

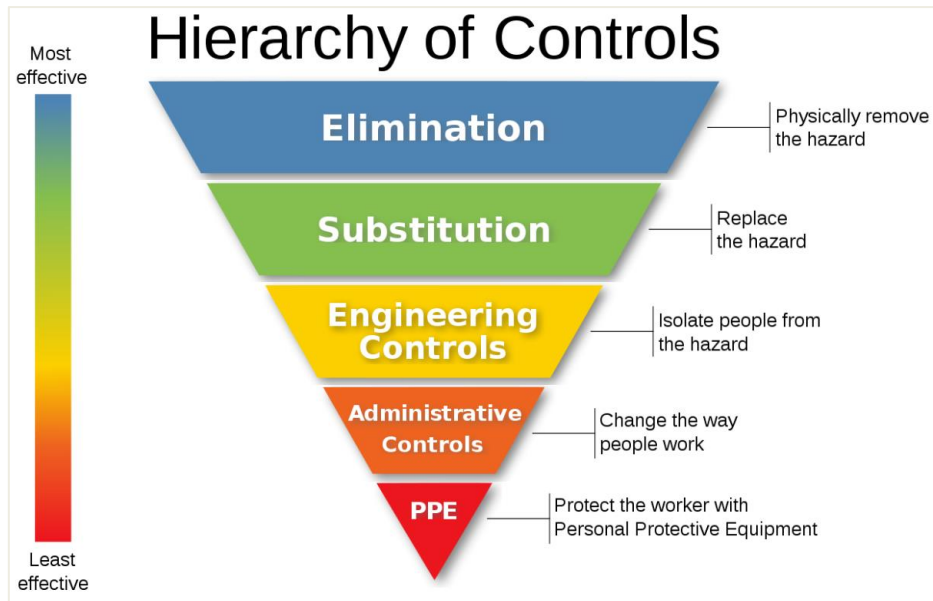
The University acknowledges that no substance can be considered completely safe and that some hazardous substances will be classified as high risk. **But** with the correct control measures in place the risk from these substances can be reduced.

Control Measures

In a COSHH assessment control measures refer to a measure taken to reduce exposure to a substance hazardous to health. Control measures can be separated in an order of priority (although often more than 1 control measure will be in place).

In order of priority (this is known as the **Hierarchy of Controls**):

- **Elimination** - Eliminate the use of the harmful substance thus removing the hazard completely.
- **Substitution** - Substitute a safer version of the substance. A more dilute version or use a different, less harmful substance.
- **Engineering Controls** - Enclose the process so that the substance does not escape e.g., local exhaust ventilation (LEV) fume cupboards.
- **Administrative Controls** – Have a safe system of work or Standard Operating Procedure (SOP) in place. Change the way people work e.g. training or have less people working in the area.
- **PPE** - Provide Personal Protective Equipment (PPE) e.g. laboratory coat, safety goggles, gloves etc.



All control measures must be checked regularly for their continuing effectiveness.

Once in place control measures need to be managed:

- Training all relevant workers in the use and maintenance of the control measures.
- Engineering Controls such as fume cupboards will require regular servicing. Costs for this will have to be included in any planning.
- Surplus stocks of PPE will be required e.g. different sizes of gloves, or different makes of disposable gloves for workers who may have skin allergies to nitrile or latex etc.

If you feel the control measures in place are not adequate, not working properly or are not suitable for the job you are working on then this must be reported immediately. Report this to your line manager or senior technician in the area.

If in doubt STOP working immediately and report it.

Working safely

It goes without saying that staff, students, and other individuals should always work safely. This is even more important when working with hazardous substances. Work areas should be kept clean and clear where possible. Good housekeeping is essential when working with hazardous substances:

- Access to emergency equipment, showers, eye wash stations and exits must never be blocked.
- Keep all work areas and especially work benches clear of clutter and obstructions. Properly store items when not in use.
- Do not place chemicals close to the edge of a lab bench (to avoiding accidental knocking off of bench).
- Chemicals must be stored properly See [Hazardous Substances Policy \(Safe Purchase, Storage and Disposal\)](#).
- Keep all aisles, hallways, and stairs clear of chemicals.
- Never stack chemicals in the work area; containers must be stored upright.
- Ensure all spills are cleaned up immediately and disposed of safely.

Training

Staff, students, and other individuals working with hazardous substances in your area will require training. The training, which can be formal, classroom-based training or on the job style training, should cover these main points:

- Safe handling and storage of any hazardous substance they are working with.
- An understanding of the hazards involved and what harm can occur from any exposure.
- Knowledge of what to do should there be a spillage or accidental release.
- How to dispose of any waste material or any excess substance left over after the work has been completed.
- All staff, students and other individuals working with hazardous substances must receive the relevant induction into the work area (laboratory, workshop etc.), information, instruction, and training on the use of chemicals and also the relevant controls to safeguard users. This instruction/training could take the form of a material data sheet or a COSHH assessment.

PPE

Personal Protective Equipment (PPE) should be used when all other measures to control exposure are inadequate. PPE protects only the wearer. Types of PPE include:

- Protective clothing - laboratory coats, aprons, overalls etc.
- Protective gloves
- Protective footwear
- Ear protection
- Eye protection - safety glasses, goggles, face shield etc.
- Respirators, welding masks, FFP3 masks etc.

PPE tends to be less effective and less reliable than other control options because it:

- Has to be selected for the individual.
- Has to fit the individual and not interfere with their work or other PPE worn at the same time.
- Has to be put on correctly every time it is worn.
- Has to remain properly fitted all the time the individual is exposed.
- Has to be properly stored, checked, and maintained.
- Tends to be delicate and relatively easily damaged.
- Can fail without warning.
- May provide no protection if it does fail.
- Has to be suitable for the job being carried out.

It is essential to use the correct PPE for the work taking place.

- Are you using the correct type of glove?
- Are safety glasses adequate for the work? Or is a face shield required?

The COSHH/Risk assessment should include the type and specification of PPE required. This will ensure the correct protection is provided.

If you are unsure then **STOP** working and check. Ask your line manager, supervisor, or senior technician in the area where you are working. Or check online - there are lots of websites (or copies

of the MSDS online) that can tell you what suitable PPE is required depending on the substance you are working with.

7.4 Record your findings and implement them (COSHH Assessment)

COSHH assessments require the following:

- List the hazards
- List who may be harmed and how
- Evaluate the risks (Low, Medium or High)
- Decide on any control measures and ensure they can be implemented
- Can you reduce the risk? High down to Medium – Medium down to Low – High down to Low.

Ensure the arrangements are formally conveyed to those working to the COSHH assessment.

7.5 Review your assessment and update if necessary

It is essential for Schools/Service areas to monitor workplace activities and to make sure any control measures in place are working correctly. You must review and revise your control measures when:

- The control measure is not working.
- If consultation shows a review is necessary.
- If there is an accident, incident, near miss or ill-health has been detected.

Any changes to the work protocol or control measures must be updated into the COSHH assessment.

The whole work protocol should be monitored and reviewed to ensure that initial evaluation and control measures are effective. Re-evaluation of the risks and control measures will be necessary with:

- Changes in the substances used.
- Changes in equipment, materials, processes or any amendments to the Material Safety Data Sheets.
- Any changes in procedures.
- Legislative or policy changes.

Summary

Schools/Service areas must:

- Consider all routes of exposure including inhalation, absorption through skin and ingestion.
- Minimise emission, release and spread of substances that could be hazardous to health through properly designed and operated processes and activities.
- Maintain health and safety by making sure that the introduction of control measures does not increase overall risk.
- Use the most effective and reliable control options to minimise the escape and spread of substances hazardous to health.

- Provide suitable personal protective equipment when exposure cannot be controlled adequately by other means.
- Inform and train employees, students and other individuals, who may be exposed to hazardous substances, on the hazards and risks of the substances they are going to be working with and control measures (including emergency procedures) to be put in place before work commences with any substances.
- All staff, students and other individuals working with hazardous substances must receive the relevant induction into the work area (laboratory, workshop etc.), information, instruction and training on the use of chemicals and also the relevant controls to safeguard users. This instruction/training could take the form of a material data sheet or a COSHH assessment.
- Make sure control measures are working and are followed properly to minimise risks.
- Regularly review and check control measures to make sure they continue to be effective.
- If you feel the control measures in place are not adequate, working properly or are not suitable for the work being carried out then **STOP** working immediately and report it.
- Contact the Health and Safety Office for further advice and support.

8 Health Surveillance

The University has an annual Health Surveillance check in place for employees and students who may be exposed to hazardous substances or whose work has a COSHH assessment that highlights the need for a health surveillance check.

Health surveillance is organised through the line manager who will contact Human Resources.

Hazardous chemicals which could come into contact with the skin or through inhaling minute particles in the air could pose a risk to a person's health if not properly controlled. In most cases exposure to trace quantities of toxic or irritant substances will cause harm only if exposure occurs sufficiently frequently. It is noted, however, that health surveillance may be appropriate even if very small or infrequent exposure to hazardous substances is known to pose a potent risk to health such as may occur with powerful respiratory sensitisers, recognised carcinogens or highly active biological agents or toxins.

The purpose of Health Surveillance is:

- To enable early identification and diagnosis of work-related conditions in individuals so that additional control measures can be put in place to prevent deterioration and promote recovery.
- To check whether general control measures in place to prevent work related health are adequate.
- To create an opportunity for training and education of employees regarding the risk of specific work-related conditions.

9 High Risk Areas

Guidance for Schools/Services with laboratories or workshops which use hazardous substances

- Laboratory areas and workshops which use hazardous substances should follow the storage guidelines in the [Hazardous Substances Policy \(Safe Purchase, Storage and Disposal\)](#).
- COSHH assessments should be in place for all work involving hazardous substances.
- All staff should be trained in the safe handling of hazardous substances.
- All staff should be aware of the hazards present in any substance they are working with.
- Students should be informed of the hazards of any substance they are working with.
- All staff/students should be aware of what do if there is a leakage or accidental spillage of a harmful substance in their area.
- All staff/students need to be aware of the potential harm to health from exposure of the harmful substances.
- All staff/students need to be aware of:
 - Any control measures in place.
 - How to operate them properly.
 - How they are maintained.
 - How to recognise if they are not working properly.
- All staff/students must be inducted into the completed COSHH assessment

If there are any substances being used in the workplace unsafely, incorrectly or without correct control measures in place then this work/activity must be stopped immediately, and the substances made safe. The incident must be reported to the Health and Safety Office.

10 Other Areas in the University

10.1 Cleaning Services

The COSHH regulations cover all substances hazardous to health including cleaning materials such as bleach, solvents, oven and toilet cleaners, antibacterial cleaners and other abrasive cleaning products. **The majority of these cleaning products, including the ones deemed hazardous, can be used safely with control measures in place.**

Cleaning materials such as liquid cleaners, solid powders and alcohol-based cleaners can affect workers and enter the body via the same routes as other hazardous substances.

- Contact with the skin through touch, spills etc.
- Inhalation through breathing in vapours, mists, fine dusts etc.
- Ingestion through swallowing hazardous substances.
- Injection through a puncture in the skin.
- Damage to skin or eyes through touch or spills from corrosive, toxic or volatile substances.
- Damage to lungs through inhalation of dusts, vapours, gases or mists.
- Damage to internal organs through ingestion of poisons or toxic substances.
- Damage to internal organs through injection from a puncture in the skin.

Other issues that can arise can be:

- Some ingredients in cleaning products can cause skin allergies and asthma.
- Having wet hands for long periods can lead to dermatitis and other skin irritations.
- Some cleaning products are corrosive and can cause skin burns and eye damage.
- Breathing in fine dusts and other fibrous materials when wiping and cleaning surfaces.

Bodily fluids

- Substances such as blood, faeces, urine, vomit and saliva are classed as hazardous substances.
- Some bodily fluids contain bacteria and viruses and can be extremely harmful.
- All spillages of bodily fluids should be treated as potentially infectious and appropriate precautions should be taken.
- Disinfectants, detergents and other cleaning materials, used for cleaning up any spillages, can be hazardous to health through contact with skin, eyes or through inhalation.

Care must be taken when cleaning up any spillages of bodily fluids. Personal Protective Equipment (PPE) must be worn and other control measures (where appropriate) should be in place.

Control Measures – Cleaning Materials

By following the hierarchy of controls:

- Elimination – Can you eliminate the hazardous substances completely?
- Substitution – Can you substitute the hazardous cleaning material for something less harmful? Or can you safely dilute the cleaning material? Is it still as effective for cleaning purposes?
- Engineering Controls – Can you use equipment to keep cleaning staff away from hazardous materials or at least minimise any contact?
- Administrative Controls – have a safe system of work or Standard Operating Procedure (SOP) in place. All cleaning staff should be trained in working with hazardous substances.
- PPE – Personal Protective Equipment such as gloves and aprons/coveralls must be worn when working with hazardous cleaning materials.

Summary

- Use good work techniques that avoid or minimise contact with hazardous substances and minimise spills and leaks. Store cleaning materials safely.
- Practice good hand care – remove contamination promptly, wash hands properly, dry thoroughly and use skin creams regularly.
- Keep the workplace well ventilated.

See also the COSHH for Staff Carrying out Cleaning Operations Policy

10.2 Property and Facilities

Substances hazardous to health and covered by COSHH include:

- Paint, stains, varnishes, stripping fluids etc.
- Adhesives
- Lubricants
- Disinfectants to treat water systems
- Hardwood and softwood dust
- Dusts from hardboard, plywood, MDF, timber laminates etc.

Prolonged or high exposure to paint and paint fumes can cause headaches, trigger allergies and asthmatic reactions, irritate skin, eyes and airways, and put increased stress on vital organs such as the heart.

Many adhesives and lubricants contain solvents that are toxic by inhalation and skin contact.

Wood processing causes small particles of wood dust to become suspended in the air. Workers can inhale these particles. A person's upper respiratory system can filter out the larger particles, but smaller particles can go deep into the lungs causing damage and scarring to the lung tissue.

Preventing exposure to harmful substances usually means a combination of some of the following controls:

- Good general ventilation of the workplace.
- Dust extraction should be in place when working with wood dust.
- Avoid contact with hazardous substances and minimise leaks and spills.
- Personal protective equipment such as respirators, gloves, eye protection should be worn.
- Practice good hand care – remove contamination promptly, wash hands properly, dry thoroughly and use skin creams regularly.

10.3 Stores and Delivery Staff

- Chemicals and hazardous substances, being delivered to the campus, should be clearly labelled, well packaged and therefore safe to receive and to deliver to schools/service areas.
- Any packages, containing potentially harmful or hazardous substances, which appear to be damaged or leaking, should be reported immediately to the appropriate school/service area, end user or the University Health and Safety Office.
- Packages which appear damaged or are leaking should not be opened or handled but contained safely, if possible, until trained personnel have been contacted.

10.4 Kitchen and Catering Areas

Kitchens and catering areas contain substances such as flour dust and cleaning materials such as oven cleaners which can be harmful to health. Flour dust can cause asthma when breathed in and other food dusts such as improver dusts containing enzymes and dusts from protein-containing ingredients such as egg or soya can be irritants. Control measures include:

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- Careful working to avoid raising clouds of dust
- Dust extraction
- Vacuum or wet cleaning
- Respirator for very dusty tasks
- Skin checks

Some other foods and ingredients in cleaning products can cause skin allergies and asthma. Cooking fumes contain oil mists, irritating substances, smoke and if used on gas-fired equipment the potential for carbon monoxide to escape. Having your hands wet for a long time or having them frequently wet during the day can irritate your skin leading to dermatitis.

Preventing exposure to harmful substances usually means a combination of some of the following controls:

- Use good work techniques that avoid or minimise contact with harmful substances and minimise leaks and spills.
- Store cleaning products safely.
- Keep the workplace well ventilated.
- For some tasks personal protective equipment (PPE) such as gloves and aprons must be worn.
- Practice good hand care – remove contamination promptly, wash hands properly, dry thoroughly and use skin creams regularly.
- An extractor hood or canopy should be in place over cooking appliances.

11 Hazardous Substances Database

Maintaining an inventory of chemicals stored at Edinburgh Napier University (either in laboratories, workshops, store cupboards or in outside storage units) is a requirement. Edinburgh Napier University has an electronic inventory management system (Hazardous Substances Database) in place. **Nominated users must access the site and input new chemicals on arrival, adjust any amounts of substances that have been used and remove any substance that is no longer onsite.**

The hazardous substances database includes the following information:

- Name of the substance being stored
- Amount of substance being stored
- Location (Campus, room number, location in room)
- Hazardous properties of the substance
- And finally, the name of a contact person, normally the person in charge of the laboratory area (Senior Technician) or the end user of the substance.

On reception all new hazardous substances must be logged onto the database.

It is essential that should the substance be moved to another storage area within the University that this information be updated on the database. Any change in the amounts being stored, either through usage or through more of the substance being purchased, must also be updated in the database. The database should also be updated when a substance is no longer being stored within the University either from being used completely or disposed of. In these cases, the substance(s) should be removed/deleted completely from the database.

You can get access to this database by contacting the Health and Safety Office
healthsafetyoffice@napier.ac.uk

Note – Emergency Services

Should the emergency services require access, in the event of say a fire to a laboratory or workshop, they may be reluctant to enter the area because of doubt over what chemicals are present and how safely they are being stored. This can mean that valuable time is lost and a situation that would have been easy to deal with leads to major loss. The database can be accessed remotely and so the emergency services are able to ascertain which substances are in which location before they enter the premises. **With this in mind it is essential the database be kept up to date.**

12 Disposal of Hazardous Substances

Hazardous waste, including chemical waste, is subject to environmental regulations concerning disposal. The Hazardous Waste Regulations is environmental legislation relating to the segregation, classification and consignment of hazardous waste which includes chemical waste. Hazardous waste must be disposed of appropriately and therefore each School/Service area must consider the types of waste being produced and investigate the appropriate, safe routes of disposal.

Any hazardous substances which cannot be disposed of safely, and in an environmentally compliant manner, must be disposed of through a recognised licenced contractor. MSDS (Material Safety Data Sheets) will have information on safe disposal routes for hazardous substances.

But it is important to remember that the information on the MSDS is for the pure chemical/substance purchased. Any changes/modifications to the substance through the chemical process/laboratory work may render the waste product having different properties to the original substance and this needs to be taken into consideration.

Any Risk or COSHH assessment relating to the lab activity and the chemical process for the hazardous substance should include disposal guidelines for waste substances produced and any by-products created.

The same guidelines in place for the safe storage of hazardous substances (See [Hazardous Substances Policy \(Safe Purchase, Storage and Disposal\)](#)) must be in place when considering the storage of waste chemicals.

These are as follows:

- Segregation – segregate incompatible waste chemicals from each other.
- Separation – separate hazardous waste chemicals from unsuitable conditions.
- Ventilation – to provide ventilation to remove malodorous, noxious, toxic or flammable vapours of waste hazardous substances.

Schools/Service areas which produce large volumes of hazardous waste substances may have an external storage unit specifically used for storing waste chemicals. Rules must also be in place in these units to ensure incompatible waste substances are kept segregated, separated and ventilation is in place to avoid any accidental mixing and potentially dangerous occurrences such as fires or explosions.

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Waste substances should not be stored indefinitely, and checks and audits of waste storage areas should be completed regularly. For Schools/Service areas producing large volumes of waste hazardous substances regular waste uplifts by licenced waste contractors should be carried out.

Once disposed of these substances must be removed from the Hazardous Database.

13 Emergency Procedures

All Schools/Service areas need to plan and practice to cope with foreseeable accidents, incidents or emergencies. This means:

- The right equipment to deal with the emergency (e.g., a spill), including protective equipment and decontamination products and procedures.
- The correct procedures to deal with a casualty, including having the Safety Data Sheets available should the person need to go to hospital.
- The right people trained to take action.
- The correct arrangements to deal with any waste created.

14 Myths and Reality

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.

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

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

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.



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.





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.

Appendix 1: Hazard substance labelling – GHS system

Pictogram	Definition	Usage
	<p>GHS01: Explosive Explosives—which is a solid or liquid chemical capable of a chemical reaction that causes damage to the surroundings Self-Reactive—heating may cause fire or explosion without the need for air Organic peroxides—again, heating may cause fire or explosion</p>	<p>Unstable explosives Explosives, divisions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6 Self-reactive substances and mixtures, types A, B Organic peroxides, types A, B</p>
	<p>GHS02: Flammable Flammables—which are gases, aerosols, liquids, or solids that will burn or ignite under certain conditions Self-Reactives—heating alone, without air, may cause fire or explosion Pyrophoric – in small amounts, may ignite within 5 minutes after contact with air Self-Heating—which may catch fire only in large amounts and after long periods of time when exposed to air Emitters of flammable gas Organic peroxides—which, when heated, may cause fire or explosion; may be sensitive to impact or friction; and may react dangerously with other chemicals.</p>	<p>Flammable gases, category 1 Flammable aerosols, categories 1,2 Flammable liquids, categories 1,2,3,4 Flammable solids, categories 1,2 Self-reactive substances and mixtures, types B,C,D,E,F Pyrophoric liquids, category 1 Pyrophoric solids, category 1 Combustible solids, category 3 Combustible liquids, category 3 Self-heating substances and mixtures, categories 1,2 Substances and mixtures, which in contact with water, emit flammable gases, categories 1,2,3 Organic peroxides, types B,C,D,E,F</p>

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Pictogram	Definition	Usage
	<p>GHS03: Oxidising This symbol on a chemical label means that the substance is an oxidizer. Oxidizers may cause a fire by increasing the concentration of oxygen in the air.</p>	<p>Oxidising gases, category 1 Oxidising liquids, categories 1,2,3 Oxidising solids, categories 1,2,3</p>
	<p>GHS04: Compressed Gas This pictogram on a chemical label means that the substance is a compressed, liquefied, or dissolved gas under pressure at 29 pounds per square inch or more.</p>	<p>Compressed gases Liquefied gases Refrigerated liquefied gases Dissolved gases</p>
	<p>GHS05: Corrosive This pictogram on a chemical label means that the substance causes skin burns, eye damage, or destroys metals.</p>	<p>Corrosive to metals, category 1 Skin corrosion, categories 1A, 1B, 1C Serious eye damage, category 1</p>
	<p>GHS06: Toxic Acute toxicity means that exposure to a single dose of the chemical may be toxic or fatal if inhaled or swallowed, or if it comes into contact with the skin.</p>	<p>Acute toxicity (oral, dermal, inhalation), categories 1,2,3</p>

Pictogram	Definition	Usage
	<p>GHS07: Harmful Irritant—irritates the skin or eyes Skin sensitiser—which is an allergic response following skin contact Acute toxicity—which may be fatal or cause organ damage from a single short-term exposure Narcotic effects like drowsiness, lack of coordination, and dizziness Respiratory tract irritation</p>	<p>Acute toxicity (oral, dermal, inhalation), category 4 Skin irritation, categories 2, 3 Eye irritation, category 2A Skin sensitisation, category 1 Specific target organ toxicity following single exposure, category 3 Respiratory tract irritation Narcotic effects</p>
	<p>GHS08: Health hazard May cause cancer May cause respiratory irritation May damage fertility or cause harm to the unborn child May cause damage to bodily organs May cause genetic defects May be fatal if swallowed or if it enters the airways</p>	<p>Carcinogenicity, categories 1A, 1B, 2 Respiratory sensitisation, category 1 Germ cell mutagenicity, categories 1A, 1B, 2 Reproductive toxicity, categories 1A, 1B, 2 Specific target organ toxicity following single exposure, category 1,2 Specific target organ toxicity following repeated exposure, category 1,2 Aspiration hazard, categories 1,2</p>
	<p>GHS09: Environmental hazard Harmful to the environment</p>	<p>Acute hazards to the aquatic environment, categories 2,3 Chronic hazards to the aquatic environment, categories 1,2 Environmental toxicity, categories 1,2</p>

Appendix 2: Control of Substances Hazardous to Health (COSHH) Assessment EXAMPLE

Ref No:	Title:	Date:	Review Date:	School / Service:	Location:
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SUBSTANCES

Substance(s)	Quantity	Hazardous Properties	Location (Stored)	Chemical Reactions:
Industrial Methylated Spirits (IMS). Ethanol 99%: Methanol<1%	25litre drum	Highly flammable liquid and vapour. Causes serious eye irritation. Harmful by inhalation, in contact with skin and if swallowed.	Outside storage unit (O.G3.04), Sighthill Campus.	Please state any material or chemical these substances must not come into contact with Keep away from oxidising materials, heat, and flames. Avoid all ignition sources. Store in area with sufficient ventilation and sufficient air movement to prevent any build-up of vapours.

HEALTH EFFECTS / PREVENTATIVE & CONTROL MEASURES

Hazard	Existing Controls	Additional Controls	Signature / Date	Health Effects
Highly flammable liquid and vapour.	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources.	Drums are stored in outside storage units. IMS is dispensed at store and only brought onto campus in smaller volumes.	D. Conner 29/11/2022	<ul style="list-style-type: none"> • Level of exposure • Type of exposure • Duration of exposure • Amount of substance to be used • Amount of disposal • How will it be disposed of
Harmful by inhalation	Use only in a fume cupboard or well-ventilated area.	Drums are stored in outside storage units. IMS is dispensed at store and only brought onto campus in smaller volumes.	D. Conner 29/11/2022	
Causes serious eye irritation. Harmful by contact by skin or if swallowed.	PPE (laboratory coat, nitrile gloves, safety glasses).	Drums are stored in outside storage units. IMS is dispensed at store and only brought onto campus in smaller volumes.	D. Conner 29/11/2022	

Does the user require health surveillance?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Has this health surveillance been organised through Occupational Health?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

MONITORING OF EXPOSURE

Air sampling in the breathing zone-is it required and if so has it been carried out?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Can a less dangerous / hazardous substance or process be used?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Potential for skin absorption-has skin been checked?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Do any substances have workplace exposure limits?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Is it a biological agent?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If so, please give details below:	
If yes, what is its classification?			
<i>Note: if this applies, make reference to COSHH Reg 6 (69) and comply with requirements stated in the Code of Practice</i>		Industrial Methylated Spirits: Ethanol	TWA (8 hrs) 1920mg/ml STEL (15 mins) 5760mg/ml
If any substance(s) are extremely flammable, state lowest flash point	14C	Methanol	266mg/ml 333mg/ml

ADDITIONAL INFORMATION

Personal Protective Equipment

Type	Specification	Supplier	Notes
Laboratory coat			
Safety glasses with side shields (or goggles)	Complies with European Standard EN166		
Gloves	Nitrile, Butyl rubber, PVC gloves. Should comply with European Standard EN 374.		

First Aid Action

Contact Area	Action Required
Swallowed	Clean mouth with water. Afterwards drink plenty of water.
Contact with skin	Wash off immediately with plenty of water. If skin irritation continues contact your GP.
Contact with eyes	Rinse immediately with plenty of water for at least 15 minutes. Get medical attention.
Inhaled	Remove to fresh air. If not breathing, give artificial respiration.

Spillage or Accidental Release	Fire Precautions
Specify how you would deal with a spillage or accidental release	Specify actions to be taken in the event of a fire involving these substances
Small spills – use spillage absorption granules. Leave spent granules in fume cupboard to evaporate and then dispose of via normal channels. Larger spills – evacuate lab area, open windows. Use spillage absorption granules if safe to do so. Isolate all ignition sources.	Small fires – extinguish with CO2 or dry powder extinguisher. Contact emergency services. Call 4444 to contact security control.
SIGNATURE	
Assessment completed by (PRINT NAME)	David Conner
Signature	David Conner
Date	29/11/2022

RE-ASSESSMENT	
Date for re-assessment	
Review Date	
Reviewed by (PRINT NAME)	
Signature	

Appendix 3: Control of Substances Hazardous to Health (COSHH) Assessment Form

Ref No:	Title:	Date:	Review Date:	School / Service:	Location:
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SUBSTANCES				
Substance(s)	Quantity	Hazardous Properties	Location (Stored)	Chemical Reactions: Please state any material or chemical these substances must not come into contact with

HEALTH EFFECTS / PREVENTATIVE & CONTROL MEASURES				
Hazard	Existing Controls	Additional Controls	Signature / Date	Health Effects
				<ul style="list-style-type: none"> • Level of exposure • Type of exposure • Duration of exposure • Amount of substance to be used • Amount of disposal • How will it be disposed of

e.g. Ventilation, suitable work equipment, personal protective equipment, respirator, etc

Does the user require health surveillance?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Has this health surveillance been organised through Occupational Health?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

MONITORING OF EXPOSURE									
Air sampling in the breathing zone-is it required and if so has it been carried out?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Can a less dangerous / hazardous substance or process be used?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Potential for skin absorption-has skin been checked?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Do any substances have workplace exposure limits?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Is it a biological agent?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If so, please give details below:				
If yes, what is its classification?									
<i>Note: if this applies, make reference to CoSHH Reg 6 (69) and comply with requirements stated in the Code of Practice</i>									
If any substance(s) are extremely flammable, state lowest flash point									

ADDITIONAL INFORMATION			
Personal Protective Equipment			
Type	Specification	Supplier	Notes
First Aid Action			
Contact Area	Action Required		
Swallowed			
Contact with skin			
Contact with eyes			
Inhaled			
Spillage or Accidental Release		Fire Precautions	
Specify how you would deal with a spillage or accidental release		Specify actions to be taken in the event of a fire involving these substances	
SIGNATURE			
Assessment completed by (PRINT NAME)			

Signature	
Date	

RE-ASSESSMENT	
Date for re-assessment	
Review Date	
Reviewed by (PRINT NAME)	
Signature	

Copies of form can be downloaded from <http://staff.napier.ac.uk/has> under "Forms and Checklists – COSHH"

Health & Safety Team
Edinburgh Napier University
Email: health&safetyoffice@napier.ac.uk