Control of Hazardous Substances - Guidance

**What is a hazardous substance?**

A substance hazardous to health is anything that is hazardous in the form in which it may occur within work activity. It need not just be chemical compounds, it can include chemical mixtures, micro-organisms, natural materials such as flour, or processed materials such as wood dust.

**What Regulations Apply**

* Control of Substances Hazardous to Health Regulations, 2002 (COSHH), (Note there are also other regulations that cover biological agents).
* Dangerous Substances and Explosive Atmosphere Regulations (DSEAR).
* Fire Regulations.
* Lead at Work Regulations.

**How to assess risk when working with hazardous substances**

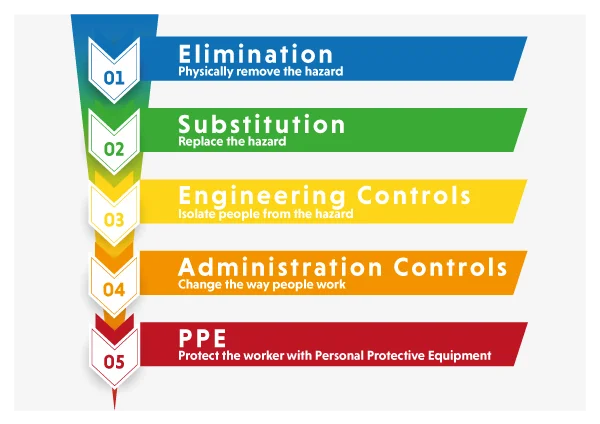
When using substances which are potentially hazardous to health, your risk assessment will require all of the substances involved in the process or research/teaching activity to be assessed, and for the appropriate controls to mitigate the risks to be put into place. In some situations, a formal detailed 'Control of Substances Hazardous to Health' or 'COSHH' assessment will be required in addition to the process or activity risk assessment.

**What is it that you want to work with?**

If using a purchased formulated product, look at the Safety Data Sheet (SDS) available from the supplier:

Hazard and Precautionary Statements in particular will provide good information as a starting point on the hazard potential and what precautions you should take if working with the material. This is needed for you to determine whether the material is a 'Low', 'Medium' or 'High' hazard material.

Working with high hazardous chemicals must be justified. **The first principle of the COSHH Regulations is that you assess whether you can carry out the task without the use of the hazardous chemicals and substances? If not, can you substitute it for one that is less hazardous?**See the hierarchy of controls here:



If you are working with a material that does not have a SDS (such as wood, metal or flour) then look at hazard information using the internet - often there is good information provided by relevant industry bodies.

Multiple chemicals being used together in a process/task will require you to consider the combined hazard potential, which may involve interactions and the production of bi-products.

If you are about to embark on a complex process/task; if you want to work with large volumes of a hazardous material; or have many repeatable processes that either involve or will liberate hazardous substances; or the work simply involves higher hazard materials, the expectation will be that you will do more research beforehand and that you reflect this within your risk/COSHH assessment. The general rule like all risk assessments is, the greater the risk, the greater the expected effort at the planning stage (and this must be documented).

**Which type of Risk Assessment do you need to complete - General expectation:**

Whilst the hazard potential of the hazardous material may fall into the categories: 'Low', 'Medium' or 'High' as reflected in the [Risk Evaluation Guidance](https://www.hope.ac.uk/media/gateway/staffgateway/governance/healthandsafetydocuments/Risk%20Evaluation%20Guidance.pdf), the risk will depend on the materials hazardous properties, the form that the material is in, how it can enter the body, the way you are intending to handle or work with the material and the volumes involved at each stage.

The risk assessment guidance [webpage](https://www.hope.ac.uk/gateway/staff/peopleservices/healthandsafety/riskassessments/) introduces you to the general principles that should be applied and which type of risk assessment should be completed under different circumstances. The general principles are outlined below:

If '**Low**' hazard material, using low volumes, if the precautions are straightforward, incorporate these into your overall activity/task risk assessment.

**Medium** or **High** hazard materials, where you have regular use or which involves moderate volumes - COSHH assessment form, although regular or routine tasks involving the materials may be subject to standard operating procedures (SOPs).

When the hazard is unknown or uncertain, or there is the potential for hazardous bi-products, or intermediary substances to be generated, then assume a COSHH assessment is required.

**Very High**involving higher toxicity/flammability and higher quantities of materials than those specified **STOP,**seek health and safety advice.

There are a number of things you need to consider when establishing the risk to health. You need to start with understanding the hazard potential (low, medium, high) and whether there could be reactions which change the hazard/risk potential, and then work out what harm it can do to you or others:

**For any type of risk assessment, you need to know:**

**How much are you intending to use?**

Generally, the more you use, the more risk it is likely to present, whether this is volume, a higher concentration or frequency. Therefore, can you work with smaller volumes and only order the quantity you need for the activity? Note that this could also help reduce the storage space required and the amount of potential waste (and associated costs involved in its safe disposal).

**What harm can it do to you or others?**

**Consider the form of the substance**

* Is it in solid form like a granule or a powder, or is it a liquid, fume or gas? *The form of the material will have an impact on how easy it may be for the material to enter the body.*
* For example, opt for a granule over a powder, select a nanomaterial that is already in solution, order a ready mixed solution, etc.
* Can you procure it 'ready-made' ?

**How you intend to work with it. *The way you work with a material could alter its form*.**

How can it enter your body? (Could it be injected, ingested, inhaled or absorbed through the skin as a result of how you intend to work with the material?) *The way in which you work with the material may alter this significantly. Read the information on the SDS. Do not just copy and paste from the SDS into your assessment!*If you are intending to work with a material that would not come with a safety data sheet, like a mild steel or wood product, then conduct some research on what could be liberated when working with the material at the planning stage.

Consider ordering the correct concentration for your activity as opposed to ordering a concentrated substance so that you remove the potential to come into contact with a highly concentrated hazardous substance (whether that is by inhalation or contact with the skin) for example. Could you vacuum up with a HEPA filtered machine, or use a damp cloth (and a specific type of protective glove, as per the SDS) instead of brushing clean an area that has been contaminated with a hazardous dust?

Could it catch fire / explode in the quantities being used and how you want to use it? *Don't forget that the more you use the greater the risk here. Is there also anything else in the space that could trigger a fire or explosive event when you work with the material?*Are your flammable storage cabinets earth bonded; have ignition sources been eradicated or could static be an issue, does the equipment you are using need to be ATEX rated? Even dusts can cause explosions if permitted to accumulate in systems or in the environment.

**Who can be affected by the activity?**

Consider anyone who could enter the space including colleagues and infrequent users of the space such as Domestic Operatives, Estates Maintenance Staff, etc.

Consider whether the activity could unduly affect any vulnerable groups e.g. pregnant workers, young people, immunocompromised people etc.

**How can I make sure it doesn’t cause harm or damage?**

For formulated materials (e.g. glues, paints, oils etc.) to be used as per their recommended application - follow manufacturer’s instructions for use.

It may be useful to develop a simple procedure to follow for a similar group of materials where the general instructions are the same. Always include the safe way to work with the chemicals, how to dispose of safely and actions to be taken should an accidental exposure to the product occur or there is a spillage.

For chemical reagents, follow good lab practice. Review journals and other suitable resources and ensure the information contained in the SDS is consulted to derive the most appropriate control measures. Local exhaust ventilation is an excellent engineering control, but is it the correct type for your application and do people know how to use it properly? Consider the hierarchy of controls and make sure that anything considered as a control measure within your assessment are in place prior to permitting the activity taking place.

Consider any storage requirements that may need to be put into place, whether you need any specific storage or more general storage requirements like being kept in a well-ventilated space away from direct heat (including adequate segregation), etc., and make sure that you know how you are going to dispose of any waste generated so that it does not cause indirect harm to people or to the environment.

If things go wrong, will you, or others know what to do? Will your current emergency arrangements for your space be adequate for any potential spills, first aid requirements, or fire situation? If you need something in addition, then you will need to state what these are, ensure that they are put into place, and educate others in what to do in the various scenarios. In high hazard environments, these emergency arrangements may even need to be 'role-played'; where this is the case, then scenario testing (and frequency) should also be reflected in your assessment and supporting documentation.

**How do I know my assessment is good enough?**

* I understand the behaviour of the materials
* I understand how its use can present a risk
* I have taken steps to remove or reduce the risks
* I have recorded and communicated the information in the assessment to others that could be affected by my work.
* Readily repeatable;
* Has step by step instructions available (e.g. in an SOP),
* The controls in place are suitable and operating (e.g. a fume cupboard),
* Users are trained, competent and supervised for the activity,
* Additional specific first aid measures are not required

**Communication of your assessment**

An essential part of all risk assessments is that the information is shared with those involved in the work activity (or who could be affected by your work) and that the precautions outlined are put into place, including the provision of instruction, information, training and supervision where identified.

Essential information about hazardous substances is available on the Safety Data Sheet (sometimes also referred to as an SDS): [See Safety Data Sheet Guidance Note](https://www.hope.ac.uk/media/gateway/staffgateway/peopleservicesdocuments/SDS%20Guidance%20Note.pdf)

Reproducing information from a Safety Data Sheet does **NOT** constitute a COSHH assessment