UNIVERSITY OF SUSSEX BRIGHTON

Guidance on Completing High Hazard COSHH Assessments

1. Introduction

Faculties and Divisions use a variety of substances in work and research. Some of these substances have harmful or hazardous properties and can present a risk to the health of staff, students and others who may be exposed to them. Some substances can also be harmful to the environment.

This guidance document aims to provide those working with hazardous substances with advice and support in carrying out a high hazard chemical COSHH risk assessment, so that the hazards presented by these substances are managed effectively to eliminate or reduce the impact on health, and to ensure that requirements of the Control of Substances Hazardous to Health (COSHH) 2002 Regulations are met.

The main objectives of this guidance are to support those with a responsibility for carrying out high hazard chemical COSHH risk assessments to:

- Reduce to as low as reasonably practicable the extent to which staff, students and others are exposed to hazardous substances.
- Ensure compliance with legislation in the use and disposal of hazardous substances.
- Ensure that suitable and sufficient high hazard chemical COSHH risk assessments are carried out.

2. Scope

This guidance applies to all substances hazardous to health, including preparations:

- Substances classified as being very toxic, toxic, harmful, corrosive or irritant i.e. substances that display the Globally Harmonised Systems (GHS) hazard pictograms (Figure 1).
- Substances with workplace exposure limits detailed in the Health and Safety Executive document EH40.
- Dusts of any kind in substantial concentrations (this may also present a DSEAR risk for dusts that can become airborne).
- Gases and vapours which act as asphyxiants if present in high concentrations.
- Any other substance that presents a risk to health due to its chemical or toxicological properties and the way it is to be used or will be present in the workplace e.g. fumes, dust.

This guidance does not cover:

- Biological agents.
- Genetically modified cells or organisms.

Although this guidance refers to Dangerous Substances and Explosive Atmospheres (DSEAR), this is not this document's key focus, and you should refer to the DSEAR Safety Code of Practice and guidance. More information about DSEAR, Biological agents and genetically modified cells or organisms can be found on the Health and Safety A-Z.

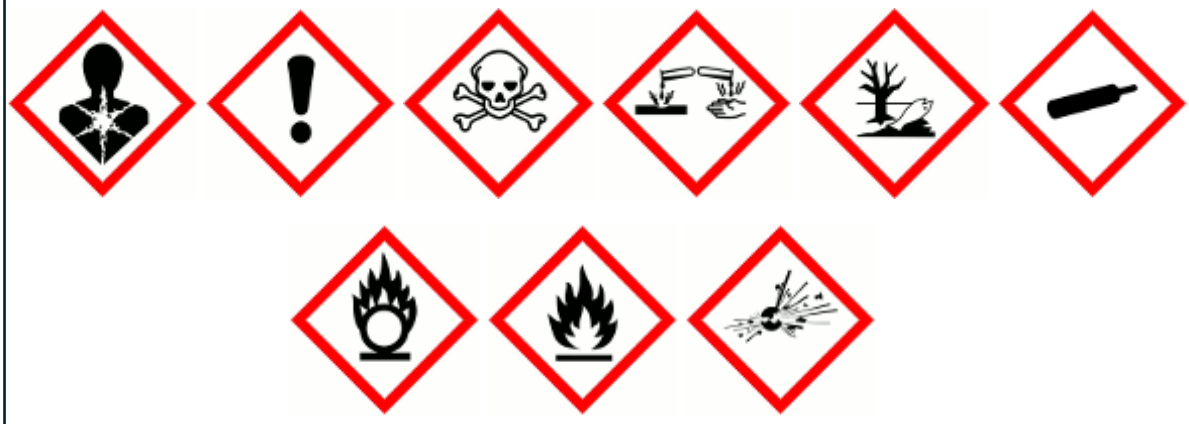

Figure 1: From left to right – Serious health hazard, Health hazard/hazardous to the ozone layer, acute toxicity, corrosive, hazardous to the environment, gas under pressure, oxidising, flammable, explosive

3. Definitions

Carcinogen – a substance that is known (Category 1) or assumed (Category 2) to cause cancer in humans.

Exposure route – a way for a hazardous substance to enter the body.

Mutagen – a substance which can cause alterations to DNA, which may lead to health problems.

Long Term Exposure Limit (LTEL) – The highest safe legal level of a substance for a regular 8-hour workday.

Short Term Exposure Limit (STEL) – The maximum legal concentration of a hazardous substance that workers can be exposed to over a short period of time, typically 15 minutes.

Time Weighted Average (TWA) – The average exposure to a substance over a specific time period, typically an 8-hour workday, and is used to set legal limits for hazardous substances in the workplace.

Workplace Exposure Limit (WEL) – the maximum amount of a hazardous substance that someone can be subjected to in relation to work. The value has been approved by the Health and Safety Executive (HSE) in relation to a specified reference period. A WEL is not a target value, and controls should aim to reduce exposure to as low as reasonably practicable.

4. High Hazard Chemical COSHH Risk Assessments

The High Hazard COSHH Risk Assessment Template is intended to be used by those who will be carrying out activities involving multiple hazardous substances. This includes source materials, products, known intermediates, by-products and activities where multiple 'off the shelf' hazardous substances are to be used e.g. a cleaning activity that requires the use of two or more separate 'off the shelf' cleaning products. The template is suitable for the majority of laboratory and workshop activities involving the use of hazardous substances.

If you are only using one hazardous substance (or a self-contained 'off the shelf' kit containing multiple components), you should see guidance on carrying out a Low Hazard COSHH Risk Assessment.

Section 1: Approval

Section 1.1 – Assessed by

This section should not be filled in until the rest of the risk assessment has been completed. Once you have completed the risk assessment, return to this section to add your details as the person assessing the activity.

Section 1.2 – Approved by

It should then be shared with the responsible person for the activity to sign off as the approver. This could be a Principal Investigator (PI), a line manager or another person who holds responsibility for the activity you have assessed.

Section 2: Review of COSHH assessment

This section details the dates that the assessment has been reviewed, by whom and who approved the review at the time. This section only needs to be completed when the assessment is reviewed. For example, following an accident or if your Faculty or Division has agreed a reasonable timeframe in which assessments should be reviewed e.g. annually, every three years etc.

Section 3: General Details

This section should be completed first. Include a brief title for your activity, who the responsible person is, where the activity will take place, the date the risk assessment is being carried out and when it should next be reviewed. The date at which the assessment needs to be reviewed will depend on arrangements within the Faculty or Division and could be annually, every three years etc.

Section 4: Chemical Inventory

Section 4.1 – Details of substances that will be used and produced

Add the substances that will be used and produced during the activity. You should only include one substance in each 'Product/Substance Name' field. For completeness, include non-hazardous substances here as well. You should refer to the substance safety data sheets (SDS) to select the hazards that each present. Where a hazard is presented by a substance, tick the

check box underneath the relevant hazard. Keep in mind that some products, particularly raw materials such as certain woods, metals, stone etc. will not include all hazard information on the SDS, or may not even come with a SDS, as hazards from these raw materials may only be presented during processing e.g. wood or stone dust. If you have more substances than the number of sections on the template, you can copy a section and paste it below as many times as required.

Other non-UK sources of information around the hazards presented by substances are available e.g. GESTIS, ECHA. However, you should ensure that as a minimum you cover all the hazards listed for a substance from UK sources. Some countries may provide hazard information that goes beyond that provided by UK sources. If this is the case, you may consider these as part of your assessment if you choose to, however, you should also keep in mind that some countries may also classify some substances as less hazardous than the UK. If in doubt, make sure you draw your hazard information from UK sources, such as UK specific SDS or the Health and Safety Executive (HSE).

Section 4: Hazard Substances Identification
4.1 Details of substances that will be used and produced
Where quantities of flammables to be introduced exceed 10L, or you will introduce compressed gases, please speak with the University Health and Safety Team

Product / Substance Name		**Quantity** *e.g. mL, kg, etc.*			**Physical Form**			**Role/Status**		
1.					Select			Select		
		Globally Harmonised System (GHS) Hazard Classification								
										
Severity Rating	Select	☐	☐	☐	☐	☐	☐	☐	☐	☐

Product / Substance Name		**Quantity** *e.g. mL, kg, etc.*			**Physical Form**			**Role/Status**		
2.					Select			Select		
		Globally Harmonised System (GHS) Hazard Classification								
										
Severity Rating	Select	☐	☐	☐	☐	☐	☐	☐	☐	☐

Where you need to list substances that will be produced, the person who will run the work should be able to confirm the hazards presented by the substance based on the substances used to produce it, similar and/or related substances, or where necessary by seeking specialist advice.

Once you have listed all the substances that will be used or produced you can use the risk matrix in Appendix 1 of the risk assessment template to decide what level of severity is presented by each substance. You can select the level of severity presented on the drop-down menu.

As the assessor, you have the agency to select the level of severity presented by the hazardous substances you are using/producing. You can use the SDS to help you make this decision, for example, by checking the Signal Word for the substance. This will either be 'Danger', which identifies high severity, or 'Warning' which suggests lower severity. You can also refer to the substance Hazard Statements, which will identify what the main hazards are for the substance. Other information to check will be the classification of the hazards associated with the

substances you will be using or producing. The hazard classifications will range from 1-5, where category 1 hazards are the most severe, and category 5 are the least. Where a hazard's category is followed by a letter (e.g. category 1A), this indicates that the harm caused will be irreversible, therefore indicating a higher severity. Where a substance contains a mixture of substances of multiple hazard categories, base your decision on the highest severity hazard category. You can also consider whether the effects would be acute or chronic, long term or short term.

You can review this information in conjunction with Table 1 below. The table identifies three categories of health effect provided within the Health and Safety Executive's (HSE) COSHH Approved Code of Practice (ACoP). It provides the HSE's example for each, and how this may then fit into the University's risk assessment matrix.

Table 1: Selecting severity ratings for hazardous substances

HSE ACoP severity	HSE Description	University matrix severity
Serious health effects	Permanent, progressive, irreversible, or permanently disabling conditions that result in lifelong disability e.g. diseases such as silicosis, cancer, persistent occupational irritant contact dermatitis, sensitisation, asthma and serious chemical burns. Loss of consciousness e.g. from exposure to an asphyxiant.	Severe – Permanent ill health and incapacity.
Significant health effects	Non-permanent, reversible and non-progressive conditions that result in temporary disability e.g. diseases such as salmonella, non-persistent occupational irritant contact dermatitis, farmers' lung and minor chemical burns to the skin.	Major – Long term incapacity but with recovery.
Minor health effects	Short term conditions such as temporary skin and respiratory irritation.	Significant, moderate or minor based on a combination of the factors mentioned previously.

When considering severity, you should consider the worst-case scenario. For example, if a substance causes cancer, assume that it will. This is because all individuals are different and an exposure to the substance for one person may not have any impact, whilst for someone else it may well do. Don't consider the likelihood of exposure at this point, this is considered at the end of your risk assessment.

Whichever severity level is the highest out of your list, this should be applied to the whole activity when working out the overall risk rating in Section 9.

Section 4.2 – Special hazards

4.2 Special Hazards – *select all that apply*					**(NOTE: Seek advice from the Science Schools H&S Team or University H&S Team)**
 Carcinogens / Mutagens (H340, H341, H350)	 DSEAR	 Asphyxiants	 Biohazards	 Radioactive Substances	**Other** *E.g. pregnancy / fertility hazards, dusts, fumes, pyrophoric, etc.*
☐	☐	☐	☐	☐	☐
Details: *(include details of associated risk assessments, if you are following the DSEAR Standard (lab based work only), etc).*					

Here you need to **identify any other hazards** that may be presented by your work activity in relation to the substances you will be using and producing. Use the substance SDS to identify if any of the substances are carcinogenic or mutagenic. Where this is the case, and you cannot use safer alternatives, you can select the check box in this section, and you will need to ensure precautions are put in place to reduce exposure to as low as reasonably practicable, which may require the full enclosure of the process.

If any substances are classed as dangerous, for example, they are marked as flammable, explosive, compressed gas or can cause corrosion to metal, you will need to check the box under DSEAR and state in the details section if you are following the lab/workshop DSEAR Standard. This sets a minimum standard of control in labs and workshops for managing the physical risks of fire and explosion. If you are following the DSEAR Standard and meet it, you don't need to include any further detail here other than stating that you are following and meet the standard. If you don't meet the standard, or your work is not lab or workshop based, you should discuss this with the Science Schools Health & Safety Team or University Health, Safety and Wellbeing Team. Following this discussion, depending on the level of risk presented by the activity, you may be able to include DSEAR controls within your COSHH risk assessment, as long as they are clearly marked as such. Alternatively, you may be required to carry out an additional DSEAR risk assessment covering your proposed work activity. For more information on managing DSEAR risks, please see the Health and Safety A-Z. If you do need to carry out a DSEAR risk assessment, its reference number should be added to the details section.

If you are using asphyxiants in your activity, such as compressed nitrogen, argon and helium, or you are using cryogenics such as liquid nitrogen, you will need to check the box under asphyxiants. You should check to find out if an asphyxiation preliminary assessment has already been carried out for your work area. If one has not been carried out, or you are introducing additional asphyxiants to those already assessed, you will need to carry out an assessment covering a full release of the substance to identify if oxygen levels will be reduced to a dangerous level. Please see the Managing Asphyxiation Risk guidance for more information. The reference for the preliminary assessment, and follow-up asphyxiation risk assessment where applicable, should be recorded in the details section.

If your activity will include biological or radioactive substances, you are required to carry out specific risk assessments for these materials, in addition to your COSHH risk assessment. Check the box under each that applies. Please contact the Science Schools Health and Safety Team or University Health, Safety and Wellbeing Team for more information.

If any of the substances present other hazards, such as **hazards to fertility or pregnancy, dusts or fumes will be produced** or any other hazards relevant to your assessment, as stated in the substance SDS, you should check the box under 'Other' and ensure that these hazards are considered through your risk assessment. If a member of staff informs you that they are pregnant and/or breast feeding, and they are likely to be exposed to hazardous substances, a new and expectant mother risk assessment will need to be carried out. Where it is deemed that the existing controls won't provide enough protection for the member of staff, further controls will need to be put in place to reduce exposure to as low as reasonably practicable. Health surveillance may also need to be arranged. If dusts will be produced, a DSEAR assessment may be required.

Additional information that could be included in the details section could include a note stating that the substances to be used are **controlled drugs or another type of regulated substance**. As the risk assessor for the activity, you have the agency to decide whether to note the hazard statements (found in the SDS) for the substances to be used. Keep in mind that the hazard statements for substances that are produced may differ from those listed for the original substances. You can also note here any significant information that those carrying out the work will need to be aware of, for example, if there is a risk of the experiment exploding if processes are not followed correctly.

Section 4.3 – Workplace Exposure Limits (WELs)

4.3 Workplace Exposure Limits *(refer to EH40 for STELs & TWAs)*			
Substance of Concern	**Contained within:**	**8-hour TWA**	**15-min STEL**
1.			
2.			
3.			

Document EH40 from the HSE can be used to support with this section. It will also help when you consider monitoring and health surveillance later in your assessment. You may also find it helpful to refer to section 8 of the substance SDS. Keep in mind that there can sometimes be inaccuracies on SDS, so it is worth comparing this information with that provided in EH40.

You can check EH40 to see whether any of your substances have WELs, which will either be listed as a time weighted average over 8 hours (TWA) or a short-term exposure limit over 15 minutes (STEL). Not all substances will have WELs and therefore won't be listed in EH40, in which case you don't need to list them in this section. Likewise, if you have mixtures of substances e.g. two containing formaldehyde, you only need to list formaldehyde once in this section and detail the mixtures that contain it in the 'Contained within' field.

Whether you follow the TWA or STEL will depend on the work activity. For example, if you are working in an environment where people could potentially be exposed to the substance throughout their day, you should take into account the TWA. If people will potentially be exposed for a short period of time, for one activity during their day, it would be more

appropriate to follow the STEL. If a STEL is not provided for a listed substance, you should note three times its Long Term Exposure Limit (LTEL) instead. You are legally required to consider WELs listed within EH40. Some countries may set lower workplace exposure limits. If you choose to follow these lower limits, you must clearly state in your COSHH assessment where these are from. You must never follow limits which are higher than those in EH40, as you will be breaking the law. If in doubt, only follow the workplace exposure limits detailed in EH40.

Once you have considered control measures later in your assessment, if there is doubt that the controls will effectively keep exposure levels below the WELs you have listed in this section, it may be necessary to engage an Occupational Hygienist to carry out air monitoring of the work area or to carry out personal air monitoring for those involved in the task.

Section 5: Activity Description

Section 5.1 – Describe the activity

The activity can be described in more detail in this section. Keep in mind the person reviewing the assessment and consider how much detail is required in the description. If it is not practical to include full instructions on carrying out the work, provide a summary and direct the reader to where detailed step by step instructions can be found e.g. Standard Operating Procedure. The description could be written in bullet points, paragraphs or any other format that is clear.

If your risk assessment is covering a lab experiment, you could write a scheme to show what is to be done. This is particularly helpful if you are planning an experiment for a well-known reaction. A scheme could also be used for novel reactions, as long as it can be understood by those who will need to carry out the work.

Section 5.2 – Exposure routes to hazardous substances

5.2 Possible Exposure Routes					
Substance	Possible Exposure Routes				
	Inhalation	Ingestion	Skin	Injection	Other (state)
1	☐	☐	☐	☐	
2	☐	☐	☐	☐	
3	☐	☐	☐	☐	
4	☐	☐	☐	☐	

The routes of exposure need to be identified for each substance that is to be used or produced. Possible routes of exposure are detailed with examples in Table 1. To find out the common routes of exposure for each substance, you will need to consult the SDS. You only need to record the routes that are identified on the SDS, remember that the first aid section can also provide advice on routes of exposure. The controls you consider later in the risk assessment should seek to prevent or reduce the likelihood of these routes of exposure.

Table 1: Routes of exposure	
Exposure route	**Example**
Inhalation	Breathing in a vapour, mist or gas. Dusts can also be breathed in, and particle size will be important here as smaller particles increase the level of risk by being more respirable.
Ingestion	A hazardous substance getting on someone's hands, where the risk of the substance getting on their hands is high, and them not washing their hands prior to eating lunch.
Absorption (Skin/Eye)	A hazardous substance getting in someone's eye or on their skin.
Injection	A hazardous substance entering the body through something penetrating the skin, such as a needle.

Section 5.3 – Frequency and duration of use

In this section you can record how frequently the process will be followed. For example, will this be carried out every hour, daily, weekly etc. You should also record the duration of the activity, for example, will it be carried out once a day for an hour. The more frequently the activity is carried out, and the longer the duration, will potentially increase the risk of exposure to those involved and those nearby, therefore frequency and duration should be reduced wherever practicable.

Section 5.4 – Who might be at risk and how many?

5.4 Who might be at risk and how many?									
University Staff	Facilities Staff	Students	Visitors	Public	Contractors	Research Participants	Young People (<18yrs)	New & Expectant Mothers	Other
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Here you need to consider everyone who may be affected by the activity you are risk assessing. Consider everyone who may be exposed to the substances you are using or producing, keeping in mind this may not only be those directly involved in carrying out the work. You should check the boxes under the relevant category and add other groups who could be affected but aren't included on the template. Where you have checked a category, in the box below it, identify how many people in that category may be affected.

People to consider will be those directly involved in the task, people who may need to service bespoke equipment and therefore may be at risk of exposure, other people in the vicinity of the work and people who have access to the work area out of hours etc.

Section 5.5 – What circumstances may result in an increased risk of exposure?

You need to consider circumstances where individuals may be at more risk of exposure. For example, this may be a cleaning process which doesn't involve the use of chemicals but does require access to the internal elements of fume cupboards and other equipment. It could also

be the process of clearing an LEV filter used to remove dust, which involves accessing the inside of a mobile local exhaust ventilation unit, you could be required to clean lab equipment after use, or there could be increased risk of exposure to those cleaning a piece of self-built bespoke equipment.

Section 6: Control measures

This section of the COSHH risk assessment follows the hierarchy of control i.e. elimination, reduction, engineering controls, administrative controls and personal protective equipment. You should refer to the sections you have already completed when considering what control measures will be most effective. Where exposure to a substance cannot be eliminated, you should follow the eight principles of good control practice (Table 2). You should consider each of the eight principles when developing your control measures. You don't need to consider the principles in the order in which they are listed, though there is a logical flow to how they are laid out.

Section 6.1 – Elimination and Substitution

Section 6: Control Measures		
6.1 Elimination and Substitution		
Can you eliminate the use of, or substitute, the listed substances?	Yes ☐	No ☐
If NO, state why:		
Can you reduce the concentration, or volumes, of the listed substances?	Yes ☐	No ☐
If NO, state why:		

Here you need to confirm if you can eliminate or substitute your listed substances for safer options, if these are available. You should tick either 'yes' or 'no' and if you have not been able to eliminate or substitute the substances, you should state why. You should do the same when looking to reduce the concentration and volumes of the substances to be used and produced. This is particularly important if any of the substances you propose to use or produce present any of the special hazards you have identified in Section 4.2 of the risk assessment template.

Table 2 – Eight principles of good control practice
Design and operate processes and activities to minimise emission, release and spread of substances hazardous to health.
Take into account all relevant routes of exposure i.e. inhalation, absorption, ingestion and injection.
Control exposure by measures that are proportionate to the health risk. For example, by ranking health risks in order of severity and addressing higher severity ones first, such as those substances that are carcinogenic.
Choose the most effective and reliable control options which minimise the escape and spread of hazardous substances.
Where adequate control of exposure cannot be achieved by other means, provide, in combination with other control measures, suitable personal protective equipment.
Regularly review the effectiveness of control measures.
Inform and train all employees on the hazards and risks from substances with which they work, the use of control measures developed to minimise risks.
Ensure that the introduction of control measures does not increase the overall risk to health and safety.

Section 6.2 – Physical Engineering Controls

6.2 Physical Engineering Controls			
Does the activity need to be isolated or segragated from other areas?		Yes ☐	No ☐
Laboratory ☐	Workshop ☐	Access control (e.g. Salto) ☐	Controlled/Regulated Area ☐
Other ☐	Please state:		
Does the activity need to be physically contained?		Yes ☐	No ☐
Fume Cupboard (Ducted LEV) ☐	Fume Cupboard (Recirculatory LEV) ☐	Glove Box ☐	
Other ☐	Please state:		
6.3 Other relevant information			
Add detail here.			

Here you need to confirm whether the task you are assessing needs to be either isolated or segregated from other areas by selecting either 'yes' or 'no'. If you have answered no, you can move onto the next question. If you answer yes, you should take this into consideration when selecting what engineering controls are required for this purpose. Some options are provided in the template, and you should select the ones that are suitable. If there are any other engineering controls that you will use to aid isolation or segregation of the task, you should list them in this section too.

Access control on a room, for example through Salto access, allows you to restrict access to only those who are permitted to enter, such as those who have received training in the task being assessed.

Controlled/Regulated Areas are spaces on campus that require involvement from a regulator in their safety arrangements, and therefore the university must meet specific requirements to be permitted to operate these areas.

Next you need to state whether the activity needs to be physically contained. If so, you should select the measures that will be put in place to control this such as the use of a fume cupboard. If you will use other measures not listed, detail them in this section.

Section 6.3 – Other relevant information

If there is any other information that is relevant to the control of the activity through isolation, segregation or containment, you can include this information in this section. For example, there may be elements of the work that do not require containment. This can be noted here if those carrying out the work are clear on the elements of the work that do require containment.

Section 6.4 – Procedural controls

Procedural controls include things such as standard operating procedures that detail measures that individuals must take to ensure they are protected from exposure to the substances they will be using and producing. This could be as simple as people standing when working in a lab or workshop so that if a spill takes place they can move away easily to avoid being splashed. It could also include procedures around lone working and how people should only be carrying out the activity with others present, whilst ensuring this number is kept as low as possible to avoid unnecessary exposure. Other examples could include having a clear fume cupboard or work bench policy and making sure that existing standard operating procedures are suitable for the substances you are proposing to use and produce in your new activity.

Section 6.5 – Storage requirements of substances

In this section you need to identify how the substances you will be using or producing need to be stored. For purchased substances you can use the substance's SDS to identify any storage arrangements that need to be followed, for example, to ensure incompatible substances are stored apart. If there is an existing standard operating procedure in place in your Faculty/Division detailing these arrangements, the document reference number can be included in this section, but make sure everyone involved in the activity has access to it.

For substances you have produced, you should think about the foreseeable substances you may produce and what substances you have used to make them. In some cases you may need to speak with the person who will be running the work as they should be able to confirm the arrangements required based on the substances used to produce them, similar and/or related substances, or where necessary by seeking specialist advice.

The level of detail you provide in this section will depend on the level of risk presented by the substances. However, in most cases, stating that substances will be stored according to their classification, or similarly, stored in a glove box under inert conditions, and other general descriptive statements will be sufficient unless additional detail is provided on the substance SDS e.g. the storage of a substance outside of ambient temperatures.

Section 6.6 – Waste management and disposal

6.6 Waste management and disposal		
Does the waste generated require pre-treatment?	Yes ☐	No ☐
If YES, provide detail:		
Will waste containers be clearly labelled with their contents?	Yes ☐	No ☐
If NO, provide justification here:		
Waste type generated	**State**	**Disposal Method**
1		
2		
3		
Add additional rows as required		

In this section you should consider how hazardous waste created by your activity is to be disposed of safely. You should consider the waste generated up to the point it is handed over to another handler. For example, if you are generating waste in a lab or workshop, you should make it safe for disposal and consider the waste disposal process up to the point the waste is handed over to Technical Services, who will then consider the waste disposal arrangements up to the point the waste is handed to a waste contractor.

You should state whether any pre-treatment of the waste needs to take place e.g. the quenching of reactive intermediates. If so, state what needs to be done in this section, then complete the table detailing the type of waste that will be generated, its state (solid, liquid, gas) and the method of disposal that will be followed.

Waste should always be clearly labelled with what it is, however, there may be rare exceptions where this is not advisable, such as the disposal of some regulated waste where attention to the contents should not have attention drawn to it. If this is the case, you should select 'no' and state why this is in the field below.

Section 6.7 – Personal Protective Equipment (PPE) requirements

6.7 PPE Requirements (Include EN numbers and other standards where applicable)			
 Respiratory Prot. Equip.		 Gloves	
 Eye Protection		 Footwear	
 Face Shield		 Protective Clothing	
 Other (Please specify)			

Using the substance SDS, you need to identify if PPE is advised. Where this is the case, you should identify on the risk assessment template what PPE or Respiratory Protective Equipment (RPE) is required. You should consider the work activity being assessed. For example, carrying out an experiment in a working fume hood won't require use of RPE, but in some cases, clearing a spillage of the same substances may require use of RPE. Ensure that if a specific European Standard (EN) of PPE/RPE is detailed on the SDS that you include this information in your risk assessment, and that this standard of PPE is provided to those who need to wear it. If the correct standard is not provided, the people wearing it will not be properly protected from the substances they will be using.

Remember that if you are using a product that won't present a hazard until it is worked on, such as producing wood dust through a sanding process, the SDS may not specifically mention PPE for this activity. You may need to consider industry best practice in this case.

Section 7: Monitoring Exposure and Health Surveillance

Section 7.1 Monitoring and Health Surveillance requirements

Section 7: Monitoring Exposure and Health Surveillance		
7.1 Monitoring and Health Surveillance requirements		
Do any of the substances you plan to use require workers to attend health surveillance?	Yes ☐	No ☐
Are the workplace exposure limits (3.3) of the substances you plan to use likely to be exceeded under normal operations, even with your control measures (5.0) in place?	Yes ☐	No ☐
Are there any other reasons why you think exposure monitoring needs to be carried out in the workarea?	Yes ☐	No ☐
Are there any other reasons why you think workers require health surveillance?	Yes ☐	No ☐
Is atmospheric or personal exposure monitoring required?	Yes ☐	No ☐
Add detail here if you answer YES to any of the above.		

Complete the questions in section 7.1 and add any further details to this section as required.

Monitoring is the process of checking the effectiveness of the control measures you are putting in place to protect people from being exposed to the substances you will be using during your activity. This may include general air monitoring to measure the concentration of substances in the air to make sure you aren't exceeding a WEL. It could also include personal air monitoring where individuals wear an air monitoring device in their breathing zone, usually on their collar. If you work in one of the Science Schools, the Science Schools Health and Safety Team can carry out indicative air monitoring using their MultiGas readers, however if concerns are raised, this should be followed up by a visit from an Occupational Hygienist. If you work

elsewhere in the university and there is concern about the effectiveness of controls, you should contact the University Health, Safety and Wellbeing Team to discuss further.

Health surveillance is any activity which involves obtaining information about an employee's health, for example, by measuring lung capacity of staff working in a wood workshop due to exposure to wood dust. If staff may be exposed to substances that could put their health at risk, it is important that base level health surveillance is carried out, for example, at the start of their employment, to see what their health is like before they begin work. This testing should then be carried out periodically to check if there is any deterioration. If there is, this may indicate a problem with your control measures, and they may need to be reviewed. More information about health surveillance can be found on the HSE website.

You should use the substance SDS to identify if any disease is associated with the substances you will be using. For example, can they cause cancer, asthma or dermatitis. If so, you should consider whether the conditions of the place where you will be carrying out your activity are likely to make the disease appear. If this is felt to be the case and substances can't be eliminated or substituted, additional controls cannot be put in place to manage the risk, the work area cannot be changed and it is essential the activity goes ahead, then those involved in the activity should be subject to health surveillance. If this is the case, please contact either the Science Schools Health and Safety Team or University Health, Safety and Wellbeing Team to discuss. Health surveillance is undertaken by the university's Occupational Health provider.

Section 8: Emergency Contacts

Section 8.1 – Contact Information

In this section you should detail the people who need to be contacted should something go wrong, for example, if there is a significant spillage, someone falls ill as a result of an exposure or any other type of foreseeable emergency relating to your activity occurs.

The people who would usually be contacts for this would be the Principal Investigator or another responsible person for the activity, their deputy (if they have one) and a member of Technical Services (depending on work location). There may also be other suitable contacts depending on arrangements in your Faculty/Division. Ensure that contact details remain accurate.

Section 8.2 – Emergency procedures (Foreseeable emergencies)

Some examples of foreseeable emergencies are included in this section. You should ensure there is a procedure in place to address these where applicable. You don't need to include the procedure in the risk assessment, unless it isn't written down elsewhere. Where a written procedure already exists, you can note the procedure document control number on the template, ensuring people involved in the activity have opportunity to read it and understand what to do.

If there are other foreseeable emergencies not included on the template, you can add additional rows and include them here too.

8.2 Emergency Procedures (Forseeable emergencies)			
Specify the procedure, or state the SOP/EOP document number, that must be followed.			
Material released or spilled			
Unattended experiments due to building evacuation			
	(Add additional forseeable emergencies as applicable)		
Other actions (if required)			
Inform the competent person (e.g. Principal Investigator, School Safety Officer etc.)		Yes ☐	No ☐
Evacuate and secure the laboratory, workshop or work area.		Yes ☐	No ☐
Evacuate the building by fire alarm.		Yes ☐	No ☐
Evacuate thhe building WITHOUT the fire alarm (e.g. where electrical/mechanical alarm system could ignite an explosive atmosphere).		Yes ☐	No ☐
Call the Security Team (x3333 on campus) to alert emergency services.		Yes ☐	No ☐

You should then identify key actions to take by selecting the relevant boxes on the template. Please see Table 3 for some examples, but keep in mind that your Faculty or Division may already have arrangements in place for specific foreseeable emergencies, such as large chemical spills.

Section 8.3 – Action to take in the event of a failure of service

A failure of service could include water supply issues affecting hand wash basins, power cuts affecting engineering controls such as fume cupboards and heating/cooling failures which could affect some experiments in labs, or make the general work area unpleasant to work in, potentially affecting those carrying out the activity to do so safely.

In this section you should consider what to do for each of these, alongside any other service failures that may cause disruption and therefore the safety of the activity.

Table 3 – Example actions to take during a foreseeable emergency	
Action	**Examples of when to take specific action**
Inform the competent person (e.g. PIs, School Safety Officer etc.)	Whenever a foreseeable emergency occurs, the competent person should always be informed.
Evacuate and secure the laboratory, workshop or work area.	An unplanned release of a hazardous substance, an unidentified odour in the work area.
Evacuate the building by fire alarm.	A fire starts as a result of your work activity.
Evacuate the building without the fire alarm.	A dangerous substance being spilt or released, and the concentration of the substance in the air is likely to form an explosive atmosphere which could be ignited by the fire alarm activating.
Call the Security Team to alert emergency services.	The Security Team can be contacted to support the lockdown of an evacuated building. They will not be permitted to enter the building, but can support the prevention of access by others. They can also contact the fire service.

Section 8.4 – First Aid

Use the substance SDS to identify and detail in your risk assessment any first aid measures that need to be implemented. You could split these arrangements up to mirror the exposure

routes that could be affected. For example, listing what first aid is required if a substance gets in someone's eyes, gets on their skin, is inhaled or is injected into them.

Sometimes SDS can be quite generic in the information they provide. Ensure the first aid requirements you record are specific to your activity and fit in with university first aid arrangements. If this is not the case, you may need to purchase additional first aid supplies and make sure arrangements are established before going ahead with your work.

Counter to this, some SDS can be quite specific and provide subtle differences in first aid advice. For example, some SDS may state not to drink water following ingestion of a substance, whilst others may state that 2 glasses of water are consumed. You should ensure these specifics are recorded in your assessment where they are provided on SDS.

Section 8.5 – Training, information, instruction and supervision

8.5 Training, information, instruction and supervision		
What training do those involved in this activity require?		
Add detail here.		
What level of supervision do those involved in this activity require?		
Add detail here.		
Other than the Principal Investigator or Responsible Person, is approval required from any other party before this activity can begin?	Yes ☐	No ☐
Add detail here.		

In this section you need to consider what training and supervision is required for people who will be involved in the activity. If specific training and/or supervision is required, you should detail what this is in this section. For example, will a toolbox talk be provided by the Principal Investigator on carrying out the work, or does formal training with an external supplier need to be arranged. The university provides general COSHH e-learning on Learn Upon, however, this is not specific to activities that may be undertaken in your Faculty or Division.

You should also detail in this section if anyone other than the Principal Investigator or other responsible person needs to be aware before the activity goes ahead. For example, if an activity is particularly hazardous or falls outside of the normal operations of your Faculty/Division it may be that the Executive Dean or Executive Director needs to be aware and approve the activity before it goes ahead. This will depend on arrangements within your Faculty/Division.

Additionally, if your work will involve the use of regulated substances or will require additional specialist input, it maybe that further approval is required from a regulator or others prior to the work going ahead.

Section 9: Residual Risk

Section 9.1 – Current residual risk

Section 9: Residual Risk		
9.1 Current residual risk		
Likelihood	**Severity**	**Residual Risk Rating**
Select Likelihood Value	Select Severity Rating	Select Residual Risk Rating

The current residual risk presented by the activity needs to be determined in this section. To do so, you should consider the control measures you have identified throughout your risk assessment and assume that they are all working effectively. You should select a value of 1-5 for the likelihood of the activity causing harm, and a value of 1-5 for the severity of harm caused. The severity value you select should match the highest severity level you selected earlier in Section 4.1 (Details of substances that will be used and produced). You may find it useful to engage others in this process such as those who will be involved in the activity.

Once you have selected a value for both, multiply the values together to calculate the overall residual risk rating for the activity. You can refer to the risk matrix in Appendix 1 of the COSHH risk assessment template to support you with this.

Section 9.2 – Further actions to be completed following assessment

9.2 Further actions to be completed following assessment		
Action	**By Whom?**	**By When?**
1.		
2.		

Here you need to list any additional control measures and actions that need to be put in place to further reduce the risk presented by the activity. For example, this may be if the residual risk you have calculated in section 9.1 remains high, despite your control measures being in place and working effectively. You should detail who has responsibility for completing the actions/putting the additional control measures in place, and when each needs to be completed by. For example, if you need to use a fume cupboard when carrying out your work, but you don't already have one, an action would be to arrange to purchase and install a suitable fume cupboard.

Section 9.3 – Residual risk after further actions completed

9.3 Residual risk after further actions completed		
Likelihood	**Severity**	**Residual Risk Rating**
Select Likelihood Value	Select Severity Rating	Select Residual Risk Rating

The residual risk then needs to be calculated, assuming that the actions you have listed in Section 9.2 have all been completed and that control measures are in place and working effectively. With this in mind, again you should select a value of 1-5 for the likelihood of the activity causing harm, and a value of 1-5 for the severity of harm caused. The severity value you select should match the highest severity level you selected earlier in Section 4.1 (Details of substances that will be used and produced). You may find it useful to engage others in this process such as those who will be involved in the activity.

Once you have selected a value for both, multiply the values together to calculate the overall residual risk rating for the activity. You can refer to the risk matrix in Appendix 1 of the COSHH risk assessment template to support you with this. If the residual risk for the activity is showing as either red or black on the risk matrix, you shouldn't start the activity and should revisit your control measures to ensure they are as effective as possible.

Your Faculty or Division may have arrangements in place already for authorising work where the risk presented cannot be reduced from high. For example, there may be a requirement for it to be undertaken within standard working hours (e.g. Mon-Fri 9-5) and only once the Head of School or Director of Division has approved it. You should contact the Science Schools Health and Safety Team or University Health, Safety and Wellbeing Team in this instance.

Section 10: COSHH Assessment Acknowledgement

The assessment acknowledgement should be completed by anyone who is involved in the activity and therefore needs to follow the COSHH risk assessment. They should add their job role, name, signature and the date they read, understood and agreed to follow the details of the risk assessment.

5. Other Considerations

An overview of the steps involved in risk assessing an activity that will involve the use of substances hazardous to health. You need to:

Table 4: A summary of what you need to do	
1	Assess the hazards and the risks that will be presented.
2	Describe what precautions are needed to prevent or adequately control exposure and record these.
3	Implement the control measures to prevent and adequately control exposure.
4	Ensure control measures are followed and maintained.
5	Monitor exposure and carry out health surveillance where required.
6	Prepare plans for accidents, incidents and emergencies.
7	Ensure people are properly informed, trained and supervised.
8	Review assessments periodically.

See also the following webpages for further guidance:

- Asphyxiating Atmospheres from Cryogenics and Compressed Gas Cylinders.
- Biological Safety, Genetically Modified Organisms and Human or Animal Tissue.
- Chemical Safety and the Control of Substances Hazardous to Health (COSHH).
- Controlled and Scheduled Drugs.
- L5: The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice.
- Dangerous Substances and Explosive Atmospheres Regulations (DSEAR).
- Decontamination.
- EH40/2005 Workplace Exposure Limits
- Hazardous Waste.
- HSE COSHH Basics
- Ionising Radiation.
- New and Expectant Mothers.
- Occupational Health.
- Personal Protective Equipment (PPE).
- Transport of Dangerous Goods.
- Ventilation: Room and Local Exhaust Ventilation (LEV).
- Artificial Optical Radiation.

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Point of Contact:	Mike Young