UNDERTAKING A COSHH ASSESSMENT GUIDANCE NOTE

This Guidance Note assists with the completion of the COSHH assessment for activities involving the use of hazardous substances which come under the Control of Substances Hazardous to Health, (COSHH) Regulations 2002 (as amended). Prior to completing a COSHH assessment, you should have read the University Local Rules for COSHH and completed the COSHH Assessors training and the Principles and Practice of Risk Assessment training.

Risk assessment is the process of carefully examining what in the workplace could cause harm to people, so that you can decide whether you have taken enough precautions or require to do more to prevent harm from occurring. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures.

The purpose of the COSHH assessment is to provide a suitable and sufficient risk assessment of any substances which could be potentially harmful to health, identify who could be at risk and determine what control measures are required to ensure this is prevented or reduced to an acceptable level where possible.

The Health and Safety Executive (HSE) suggest a 5-step approach to the process of risk assessment. This is as follows:

- Step 1 – Identify the hazards. A hazard is anything that may cause harm.
- Step 2 – Decide who might be harmed and how.
- Step 3 – Evaluate the risks and decide on the precautions or control measures required.
- Step 4 – Record the findings and implement them.
- Step 5 – Review the assessment and update if necessary.

A risk is the chance or likelihood that somebody could be harmed, together with an indication of how serious the harm could be.

COSHH requires health risks to be assessed and controlled with regard to all aspects of handling hazardous substances including receipt, storage, use, transport and disposal. Some hazardous substances may possess explosive or flammable properties in addition to hazardous properties and thus will require to be assessed under both COSHH and the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR).

The COSHH Regulations **DO NOT** apply where either the Control of Asbestos at Work or the Control of Lead at Work Regulations apply or where the risk to health is solely from radiation, noise, pressure, explosive or flammable properties, heat or cold, nor to medicines administered to patients. These are covered by other regulations.

A COSHH assessment and a General Risk Assessment **MUST BE COMPLETED** prior to the commencement of any work involving hazardous substances. All individuals carrying out the work or those who may be potentially affected by it must be made aware of the contents of the assessment and sign and date to confirm as to having read it.

It is important to remember that ALL activities which may involve work activities with hazardous substances are assessed. This includes activities such as cleaning, maintenance and repair

activities which may be carried out by cleaning, maintenance staff (e.g. plumbers, joiners, electricians etc) or others (e.g. contractors, service engineers etc).

It is a legal requirement that for any COSHH assessment which stipulates measures for personal exposure monitoring, health records must retained by the University for a minimum of 40 years, however Safety, Health and Wellbeing advises that Departments should employ a mechanism to retain any COSHH assessments that may have potential future health effects indefinitely.

The following provides guidance on completing the COSHH assessment, and should be used in conjunction with the SDS, documents referenced throughout, and any other relevant information including peer expertise.

SECTION 1

1.1 OPERATION / ACTIVITY

- Identify the activity by an appropriate title.
- Enter the location(s) of the work activity. The location of an activity can significantly alter risk. Different levels of risk may arise from the same activity performed in different locations if there is also a difference in the standards of the facilities of the locations.
- A brief description of the work process during which the hazardous substance(s) are used should be included here.

1.2 PERSON RESPONSIBLE FOR THIS WORK

The person directing the research or work activity i.e. the Principal Investigators (Academic Supervisors), Trade Supervisors and Line Managers are ultimately responsible for ensuring that:

- Suitable and sufficient COSHH assessments are carried out;
- Remain valid;
- Control measures that are identified are applied.

Details of the individual **responsible** for the work should be completed in this section.

1.3 PERSON CONDUCTING THIS ASSESSMENT

The person carrying out the assessment, referred to as a **COSHH Assessor** does not have to be the person ultimately responsible for the work; however, they must have sufficient knowledge and training to be able to carry out the assessment on behalf of the person responsible for the work. They must be competent to identify the hazards and risks and to be able to select and apply appropriate control measures.

The COSHH Assessor, and the Responsible Person for the work, must complete the COSHH Assessors and the Principles and Practice of Risk Assessment training which is available via Safety, Health and Wellbeing.

COSHH assessments must be reviewed at least annually. It is also important that the assessment is reviewed immediately if there is any reason to suppose that the original assessment is no longer valid. This could be as a result of the following:

- Significant changes made to the work activity (e.g. the introduction of new hazardous substances).
- Introduction of new personnel (e.g. young and inexperienced workers).
- Changes in procedures or work environment or location.
- In response to reported work-related ill-health conditions or following an accident or incident investigation (within or out with the University environment).

The person responsible for the work activity must ensure the assessment is reviewed and remains valid.

SECTION 2

2.1 HAZARDOUS SUBSTANCES

All hazardous substances must be added in this section. For the purposes of COSHH, a substance is defined as a natural or artificial substance whether in solid or liquid form or in the form of a gas or vapour (including micro-organisms).

- For chemical substances search for the product name.
- For a proprietary material, search for the trade name.
- For biological agents, search the material being used.
- For mixtures, it may be necessary to add the mixture by submitting an agent request.
- Where a substance can't be found an agent request may need to be submitted.

Note that by-products, intermediate substances and waste residues from activity processes can also be regarded as hazardous and therefore it is not just the form in which it is originally used in the work activity that may need to be considered.

Upon adding a substance to the COSHH form in Section 2.1, the details of the substance should be viewed by clicking on the eye icon. The details should be cross checked with those on the SDS, this is particularly relevant for the hazard and precautionary statements, and the Workplace Exposure Limit. A major source of information for completing the COSHH assessment for **chemicals** can be found from the **Safety Data Sheet (SDS)** for the substance(s) in question. These are normally supplied by the Manufacturer / Supplier at the time of purchase or can usually be obtained from their website or by contacting them directly. An example of the type of sections contained in the SDS can be found under Appendix 2 of this Guidance Note.

Hazard Statement and Precautionary Statement

The EU CLP (Classification, Labelling and Packaging) Regulation adopts the Globally Harmonised System (GHS) throughout Member States of the European Union. Following the UK's exit from the EU, the CLP Regulation has been retained in GB law, with some minor changes, to become the GB CLP Regulation. These arrangements mean GB continues to adopt GHS. The GHS aims to ensure that information on the hazardous properties of chemicals is

available throughout the world in order to enhance the protection of human health and the environment during the handling, transport and use of chemicals.

If you use a hazardous chemical, you should make sure that you use and dispose of it properly and know what to do if something goes wrong, like a spillage. Some chemicals need more careful handling than others. Labels can help you identify the more hazardous chemicals, tell you what the hazards are and how to avoid them. Where the supplier concludes that no hazardous properties have been identified, a chemical is not classified as hazardous and there is often nothing more to do. But where the supplier does conclude that a chemical could cause harm, they are expected to provide information about this on the label.

A hazard label is made up of specific symbols (known as 'pictograms') and written warnings. These pictograms and the wording that supports them are set out in law and chemical suppliers must use them where hazardous properties have been identified.

A Hazard Statement is a phrase that describes the nature of the hazard in the substance or mixture. A hazard statement will be determined by the application of the classification criteria. There are 3 categories of Hazard Statement:

- Physical series denoted by H200
- Health series denoted by H300
- Environmental series denote by H400

Examples of Hazard Statements include:

- Causes serious eye damage
- Toxic if swallowed
- Toxic to the aquatic life with long lasting effects
- May cause allergy or asthma symptoms or breathing difficulties if inhaled

A Precautionary Statement is a phrase that describes the **recommended measure(s) to minimise or prevent adverse effects resulting from exposure** to a hazardous substance or mixture due to its use or disposal. There are 5 categories of Precautionary Statements:

- General series denoted P100
- Prevention series denoted by P200
- Response series denoted by P300
- Storage series denoted by P400
- Disposal series denoted by P500

Examples of Precautionary Statements include:

- Wear eye protection
- Do not eat, drink or smoke when using this product
- Avoid release to the environment
- In case of inadequate ventilation wear respiratory protection

Signal words include ‘Danger’ and ‘Warning’. If the chemical has a more severe hazard, the label includes the signal word 'Danger'; in case of less severe hazards, the signal word is 'Warning'

CLP Hazard Statements for individual substances together with a description of their hazards, can normally be found under Section 2 (Hazard Identification) and Section 15 (Regulatory Information) on the SDS. CLP Precautionary Statements for chemicals can be found in Section 2 (Hazard Identification) of the SDS.

CLP hazard pictograms alert us to the presence of a hazardous chemical. The pictograms help us to know that the chemicals we are using might cause harm to people or the environment and appear in the shape of a diamond with a distinctive red border and white background. One or more of the following pictograms might appear on the labelling of a single chemical and on the safety data sheet (SDS).

Explosive
(Symbol: exploding bomb)

Flammable
(Symbol: flame)

Corrosive
(Symbol: Corrosion)

Oxidising
(Symbol: flame over circle)

Acute toxicity
(Symbol: Skull and crossbones)

Hazardous to the Environment
(Symbol: Dead tree and fish)

Health hazard/Hazardous to the ozone layer
(Symbol: Exclamation mark

Serious health hazard
(Symbol: health hazard)

Gas under pressure
(Symbol: Gas cylinder)

Note: care should be taken with old chemicals that may have been present in the laboratory for a long time as they may not have satisfactory hazard warning labels or SDSs available for them. If in doubt, contact the supplier or Safety, Health and Wellbeing for advice.

Biological Agents (a Biological Agent is defined as any micro-organism (bacteria, virus, parasite, fungus), cell culture (the in-vitro growth of cells derived from multicellular organisms), or human endoparasite including any which may have been genetically modified, which may cause infection, allergy, toxicity or otherwise create a hazard to human health.) don't have hazard and precautionary statements**.** Biological agents are categorised into one of four hazard groups using the criteria set out in Table 1 below.

Table 1: Hazard Groups for Biological Agents

Hazard Group	Pathogenicity for Humans	Hazard to Workers	Likelihood	Effective Prophylaxis or Treatment
1	Unlikely to cause human disease	Unlikely	Unlikely	Unlikely
2	Can cause human disease	Possible	Unlikely	Usually available
3	Can cause severe human disease	May be serious	May spread	Usually available
4	Causes severe human diseases	Serious	Likely	Usually none

The Advisory Committee on Dangerous Pathogens (ACDP) categorise pathogens in the form of an approved list. The COSHH Regulations impose legally binding requirements by reference to this list. The list is available on the HSE website at http://www.hse.gov.uk/pubns/misc208.pdf

The University does not have suitable laboratory containment for Hazard Group 3 and 4 biological agents however please refer to the OHS Biological Safety Standard (OHS Operational Control Standards - University of Strathclyde) for the use of derogated Hazard Group 3 agents or contact Safety, Health and Wellbeing for further information.
Anyone working with biological material must register on the BP system through Pegasus.
Note: if biological work involves **genetic modification**, **this requires a separate risk assessment form** to be completed. Please contact the Genetic Modification Safety Committee at gmcommittee@strath.ac.uk.

Other Sources of Information for Hazard Determination
Other sources of information that can be sourced to help determine whether chemicals are likely to contain hazardous properties or whether biological agents are considered to be hazardous include:

- Experience with similar substances.
- Guidance documents from Health and Safety Executive (HSE).
- Technical reference sources (textbooks, scientific and technical papers, trade journals etc).
- Reliable websites.
- Professional institutions.
- For biological agents, the ACDP / HSE documentation may be useful as well as any information from a commercial supplier.

In the case of substances with “unknown” or “undocumented” hazard properties, the person responsible for the work activity would be expected to have the competency to assess the likelihood of potential hazards from their experience or from the chemical structure of the substance, so that they could identify any likely hazards of the substance with reasonable accuracy.

Workplace Exposure Limits

- Work Exposure Limits (WELs) are occupational exposure limits set under COSHH in order to protect the health of workers. WEL’s are concentrations of hazardous substances in the air averaged over a specified time period (15 minutes or 8 hours).

- If a substance does have a WEL i.e. there is a possibility of airborne contamination (e.g. vapour, gas or dust), then the appropriate 15 min Short Term Exposure Limit (STEL) or 8 hr Time Weighted Average figure should be entered into this section in either ppm or mg/m^3.
- Where a substance has been assigned a WEL, it will usually be located under the **Exposure Controls and Personal Protection** (Section 8) of the SDS.
- A list of substances with WELs can be found in the Health and Safety Executive website in the EH40 document EH40/2005 Workplace exposure limits (hse.gov.uk).
- **Note:** SDS may list WELs for a number of countries; it is the UK limits that should be referred to for COSHH assessments in this country.

Quantity
It is important that the quantity of substance is considered in the assessment as even very small quantities of some chemicals or biological agents will present a potentially greater hazard than the same quantities of other substances.

- For chemicals, state the quantities of substance being used in weight (e.g. milligrams, grams, kilograms) or volume (e.g. millilitres, litre).

For biological agents, consider the quantities under the following volumes:

- Less than 1 litre
- One litre to 100 litres
- More than 100 litres

Form of Substance
- Select the format that each substance will be used in. For example is it a powder, liquid, dust, gas, vapour during the activity.
- It may be appropriate at this stage to consider if a less hazardous form of a substance could be used instead e.g. liquid form instead of a fine powder form.

2.2 ROUTE(S) BY WHICH THE SUBSTANCES ARE HAZARDOUS

Identify the routes by which the work activity gives rise to potential exposure. For example, if a hazardous substance is poured or decanted from one container to another allowing vapour to escape, you must decide whether the work process is being done safely or whether better precautions are required.

The main routes by which hazardous substances can enter the body are:

a) Inhalation
This is usually the most serious route of exposure since the lungs are a vulnerable part of the body that readily absorb gases, vapours and soluble dusts which can then be absorbed into the bloodstream and transported to other parts of the body.

b) Direct Contact: Skin, eyes
Breaks in the surface of the skin such as cuts, grazes, abrasions and certain skin conditions increase the risk of exposure.

Substances can easily get into the eyes and eye protection should be used if there is a potential for this to occur through actions such as accidental splashes.

c) Skin absorption

Additionally, some substances can be readily absorbed into the skin. It is important that good occupational hygiene measures are observed and applied for example, any breaks in the skin should be appropriately covered to prevent substances from entering the body.

d) Injection (via sharps)

Activities involving "sharps" also present the risk of direct injection. Where possible the use of sharps should be eliminated or alternatives sought. Needles should not be resheathed.

e) Ingestion

This is the least likely route of exposure and the possibility of solid or liquid substances being ingested is very limited. The most likely scenario is hand to mouth contamination. This is unlikely to result in anything beyond local contact i.e. the lips and mouth area and can be controlled by wearing appropriate PPE and good occupational hygiene. For example, gloves worn for laboratory work should be removed and hands washed prior to leaving laboratories. It is extremely important to ensure that hands are washed after work activities and prior to going on rest breaks which may involve eating or drinking.

2.3 PROCESS FACTORS INFLUENCING THE RISK OF EXPOSURE

For any work carried out on the open bench or out with a total enclosure or LEV system, you must consider whether any specific aspects of the procedures carried out could present an increased risk of exposure. The following list gives an idea of some of the processes which may need to be considered, although it is not exhaustive.

a) Weighing

Substances are usually weighed out on the open bench. However, you need to consider whether the substance that you are weighing has a hazardous property that requires you to prevent the risk of possible exposure. Weighing hazardous substances can be carried out using Local Exhaust Ventilation such as a fume cupboard or through a fully enclosed system such as a glove box. If the air movements cause problems with balance readings, other techniques such as weighing by difference can be employed.

b) Pipetting

Different sizes and types (such as glass or plastic) of pipettes may be used in work activities. Various devices may be used with the pipettes such as automatic and manual pipette aids / dispensers, bulbs and teats. There is potential for contamination of pipette devices with the substances in use if they are unwittingly drawn into the body of the pipette mechanism. It is important to ensure that users have been trained in how to use the pipetting equipment properly and in adopting good pipetting techniques.

To minimise the risk of generating aerosols and contaminating of pipette equipment, plugged pipettes with filter tips should be used. These can be purchased pre-plugged or can be plugged prior to use. Mouth pipetting is strictly prohibited.

c) Filtering

You should consider what you are filtering and ensure that you have the appropriate type of filters suitable for the substance and activity.

d) Shaking / Mixing

Equipment such as shaking incubators, roller shakers, orbital shakers, 3D (Belly-dancer) shakers, whirl mixers and vortexes will result in potential exposure if containment of the contents is lost. For example if the substance spills, leaks or stoppers come loose. Consider using a fume cupboard in conjunction with PPE.

e) Centrifugation

There is risk of exposure if the containment is lost for example due to tube breakage or from the generation of aerosols.

- It is important to use centrifuges that have sealed buckets and rotors when centrifuging hazardous substances as oppose to an open style centrifuge.
- Care must be taken to ensure tubes are correctly balanced for the centrifuge.
- Contingency arrangements should be considered in the assessment.

- Depending on the sample, rotor size and speed of centrifugation, different types of centrifuge tubes can be used. Proper selection of centrifuge tubes helps to ensure that:
  - leakage does not occur;
  - none of the sample is lost;
  - the chemical properties of the sample and the tube do not conflict;
  - the sample can be recovered with little effort.

f) Use of sharps

The use of sharps such as needles, scalpels, blades, glass slides, Pasteur pipettes, cover slips, capillary tubes, scissors, knives and forceps presents an opportunity for cuts, abrasions and puncture wounds to occur and the possibility of substances entering the body via the skin. It is therefore important to:

- Eliminate the need for the use of sharps wherever possible.
- Consider using safer alternatives such as using plastic instead of glass.
- Carefully plan out of the procedures involved.

It is important to also consider the safe disposal of all sharps (for example by using suitable sharps containers).

g) Elevated temperature

Increasing the temperature will increase the rate at which volatile substances form vapours which could present an inhalation risk. It is important to:

- Consider using less volatile substances where possible;
- Use lower temperatures if possible;

- Use appropriate LEV such as fume cupboards for these procedures and;
- Design the procedures to be able to cover or partially cover the process and reduce the surface area of liquid.

h) High Pressure

High pressure may result in a risk of hazardous substances being ejected and aerosolised. Consider the location of equipment and suitable PPE.

i) Sonication

Sonication is the act of applying sound energy to agitate particles in a sample, for various purposes such as:

- When it is not possible to stir a sample.
- To provide the energy for certain chemical reactions.
- To proceed, to remove dissolved gases from liquids.
- To disrupt biological cell membranes to release their cellular contents.
- To clean objects.

There is a possibility that aerosols could be generated, therefore it is important to ensure sample containers are capped or sonicator lids are fixed during use.

2.4 COMMENTS ON THE HAZARDS ASSOCIATED WITH THE SUBSTANCES

Use this section to list any known or documented health hazards associated with potential exposures to the substances being used or generated in the operation or activity. Include details on whether the health effect is due to the nature of the substance e.g. vapour, aerosol, liquid, dust or solid being used for example, dermatitis of the skin, or to some other element of the process or activity.

SECTION 3.0

3.1 IDENTIFICATION OF THOSE AT RISK OF EXPOSURE

Identify all categories of staff, students and others either working with the substances or who may be exposed to them in the course of their work.

Special consideration is required for the following groups of individuals:

a) Pregnant Women or Women of Reproductive Age

New and expectant mothers as well as women of childbearing age can be affected by substances with particular hazard statements, as well as presenting a risk to the unborn child, such as H340, H34, H350 and H360, H361, H362. Please refer to the University Local Rules for New and Expectant Mothers (OHS Operational Control Standards - University of Strathclyde) for further details.

b) Young (under 18 years)

Young workers are a high risk group in the workplace. They are likely to be naïve, without training and experience, liable to underestimate danger and overestimate their own capabilities. Additionally, because of their age, they may be protected from risk by being specifically

prohibited, by legislation such as the Health and Safety (Young Persons) Regulations 1997 from carrying out certain acts or prohibited from using certain pieces of equipment or substances. They must not be asked or allowed to carry out any task which is forbidden to them by law, including work which involves harmful exposure to agents which are toxic or known carcinogenic agents. Further information can be obtained from Safety Services.

c) Inexperienced Workers

Inexperienced workers may lack the appropriate knowledge, understanding and handling skills for the work activities involved and thus they are likely to require additional training and supervision whilst their experience develops.

d) Immunocompromised Individuals

Immunodeficiency (or immune deficiency) is a state in which a person's immune system's ability to fight infectious disease is compromised or entirely absent. Most cases of immunodeficiency are acquired for example transplant patients who take medications to suppress their immune system as an anti-rejection measure. However some people are born with defects in the immune system. A person who has an immunodeficiency of any kind is said to be immunocompromised. An immunocompromised person may be particularly vulnerable to opportunistic infections, in addition to normal infections that could affect everyone; therefore they may be at an increased risk from work with biological agents.

e) Cleaning and Maintenance staff, Contractors, Service Engineers, Visitors etc. and others

Consideration must be given to any other individuals such as cleaners, maintenance staff, contractors and visitors who may not be directly working with the substances in question, but are working or are present in an area that could be affected. These individuals must be considered if there is a risk of potential exposure through a spillage or unplanned release. For example if a microbiological cabinet was undergoing a fumigation process and the fumigant had not been properly contained, then any persons entering the work environment could be potentially exposed to the fumigant. Therefore it is important to ensure that all measures are taken to prevent this from occurring. These individuals may need to be told, in part or in full, about the information contained in the COSHH risk assessment that could affect them.

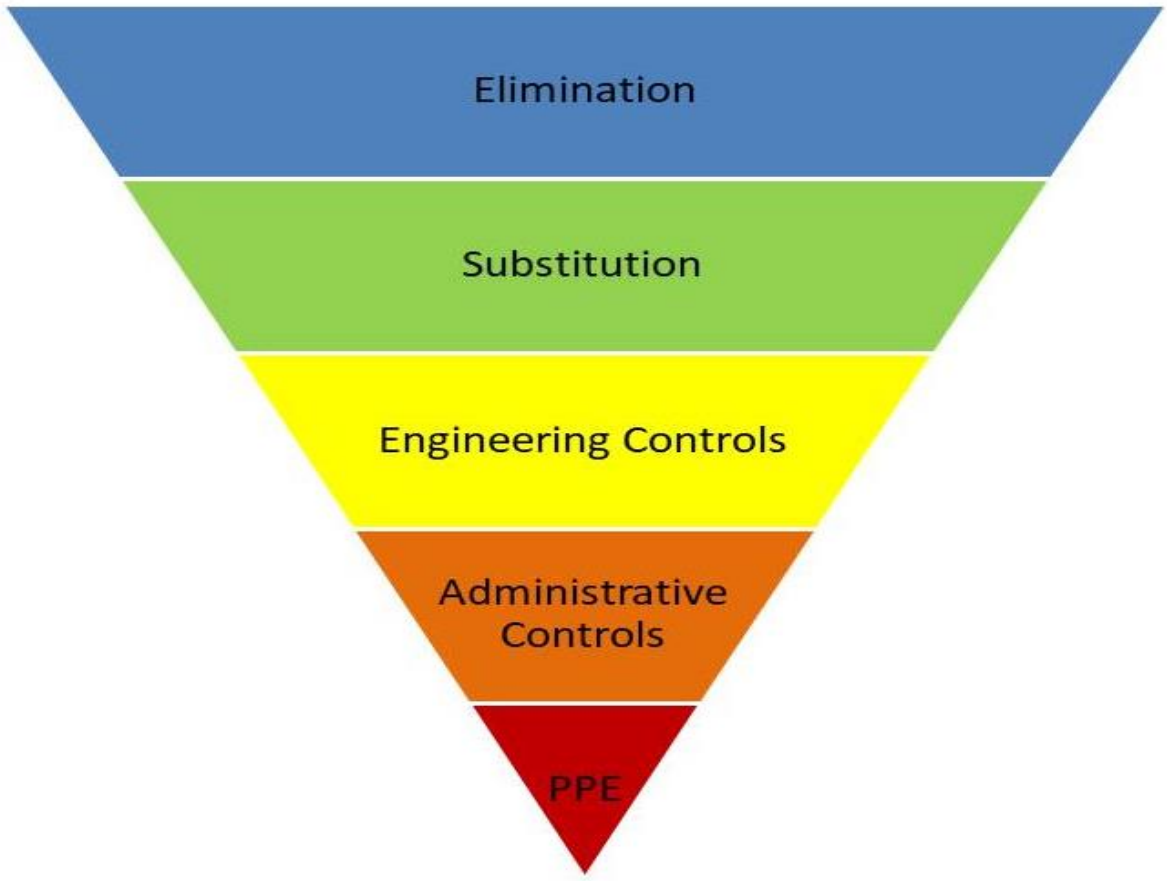
SECTION 4.0

4.0 CONTROL MEASURES

Identify the control measures required to minimise risk. Apply a degree of proportionality but remember that the level of detail required will also depend on the degree of risk. The controls should be applied in accordance with the recommended hierarchy of control measures:

- **Elimination**.
- **Substitution.**
- **Engineering and design controls**. These include Local Exhaust Ventilation (LEV), total enclosures such as glove boxes or partial enclosures such as fume cupboards and safety cabinets,
- **Administrative controls**.
- **Personal Protective Equipment (PPE).** This includes items such as safety glasses, face shields, gloves etc).

Hierarchy of Control Measures



4.1 CONTROL MEASURES - ELIMINATION / SUBSTITUTION

Prevention of exposure is the first priority under COSHH. Different approaches can be taken for this such as:

- Can you eliminate the need to use the hazardous substance?
- Can a safer form of the substance be used instead (e.g. liquid or pellet instead of a powder)?
- Can a less hazardous substance or less risky procedure be used if possible?
- Can the frequency of the hazardous procedure(s) be reduced?
- Can a smaller amount of the hazardous substance be used?
- Is it possible to reduce (or exclude) the number of non-essential personnel from the vicinity during hazardous procedures (i.e. Hazard zoning)?

4.2 CONTROL MEASURES - ENGINEERING & DESIGN

a) On-the-Bench Activities

Consideration will need to be given to which activities are of sufficiently low risk to be carried out on the open bench. Substances which may fall under this category may include those that are:

- Non-hazardous via the inhalation route.
- Used in small quantities.
- Non-volatile.
- Non-dusty.

Simple additional containment measures such as using work trays can limit spillages and drips from pipetting.

b) Full or Partially Enclosed Systems

Those parts of the activity that require the use of a fume cupboard or other form of local exhaust ventilation (LEV) need to be identified. These will typically be activities involving:

- large quantities of volatile or flammable liquids
- substances which are hazardous via the inhalation route.

Where LEV is employed it needs to be appropriate for the task and where relevant, located and installed in accordance with British / European standards.

Class II Fume Cupboard

Glove box

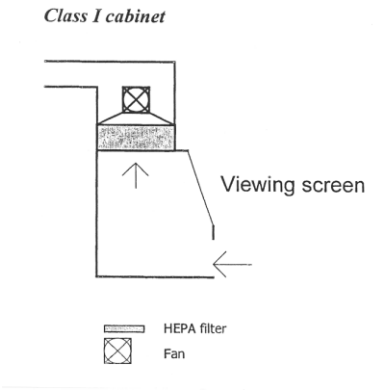
Microbiological Safety Cabinet

c) Microbiological Safety Cabinets

A Microbiological Safety Cabinet (MSC) is a ventilated enclosure intended to offer protection to the user and to the environment from aerosols generated when handling biological agents or material that may contain such agents.

- COSHH requires that work with any biological agent that could create an infectious aerosol ***must*** be undertaken inside a safety cabinet.
- MSCs must be used for Hazard Group 2 and above organisms.
- Air discharged from a MSC to the atmosphere must always be filtered.
- Re-circulating microbiological safety cabinets should not be used with significant quantities of volatile chemicals since the vapours will simply be re-circulated back into the laboratory.
- There are three classes of safety cabinets and these can either be recirculation or ducted externally. The preferred option for venting safety cabinets is to duct the exhaust air to the exterior of the building through a dedicated extract system. It is extremely important that the correct type of safety cabinet is used for the work being carried out. For further information on this please contact the Biological Protection Service.

The Class of MSC should be stated:

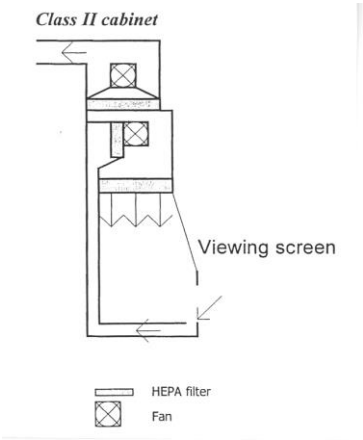


Class I

An open fronted cabinet designed to protect the operator by continuously drawing air into the front of the cabinet.

Air is filtered through a HEPA filter before being discharged to the outside atmosphere.

This type of cabinet is used for working with ACDP Group 3 organisms or ACDP Group 2 organisms where there is the likelihood of the production of infectious aerosols.



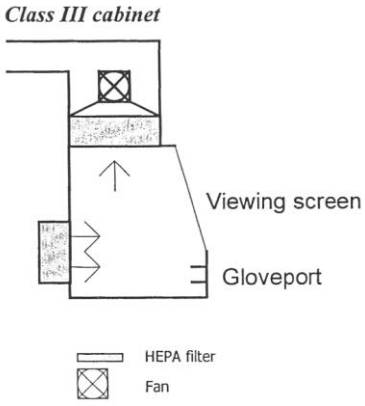
Class II

An open fronted cabinet designed to protect the operator from exposure and the work from external contamination.

Inward air is directed downwards below the work surface and is filtered before being redirected into the work area as a laminar down flow of clean air. The balance of this down flow air with the incoming air provides an air curtain at the front and operator protection, which with good technique and proper siting should be equivalent to that of Class I cabinets.

Their performance is however more affected by other factors such as operator movement and air movements inside the cabinet. They are mainly employed for tissue culture work.

A special type of Class II cabinet where only 30% of the air is re-circulated is available for work with carcinogenic and toxic compounds. This type of cabinet ***must*** be exhausted to the outside atmosphere.



Class III

This type of cabinet provides total operator protection and protection for the work. It is completely sealed and air is drawn in through a HEPA filter and exhausted to the outside atmosphere through another HEPA filter.

The operator works in the cabinet using integrated rubber gauntlets, making movements more restricted.

This cabinet is used for work with hazard Group 3 organisms deemed to be high risk (e.g. highly concentrated samples) and ***must*** be used for ACDP Group 4 organisms.

e) Laminar Flow Hoods/Workstations

On no account should micro-organisms be handled in a laminar flow (vertical and horizontal) workstation.

These are **not** microbiological safety cabinets and should never be used when handling infectious or potentially infectious materials. They deliver either a horizontal or vertical stream of sterile air over a work surface where sterile materials e.g. culture media or drug preparation, may be handled or dispensed. Any aerosols produced are actively blown towards the operator. There is no protection of the worker or the laboratory from aerosols in a laminar flow workstation.

Animal derived material or tissue may only be used after a full risk assessment that confirms the total non-pathogenic and non-allergenic status of the material.

f) Maintenance and Testing Schedules

LEV must be subject to a suitable maintenance regime and should be tested at least every 14 months. Within the University, Estates Management perform maintenance tests on certain types of LEV ductwork to the external emission points every 14 months and departments are responsible for arranging and carrying out other performance tests. Best practice is that performance test results are clearly displayed on equipment. Inspection and testing results for equipment must be retained for at least 5 years.

Emergency procedures should consider the action to be taken in the event of LEV breaking down or being turned off (either accidentally or for planned maintenance work).

4.3 CONTROL MEASURES – ADMINISTRATIVE CONTROLS

Administrative control measures include:

- Risk assessments.
- Systems of Work (SOWs) or Standard Operating Procedures (SOPs)
- Special written procedures.
- Local rules and guidance documents
- Signage.
- Permit-to-Work authorisations.

A permit-to-work system is a formal written system used to control certain types of work such as maintenance activities which may be potentially hazardous. For example this would include repair work carried out on pipe work and ducting systems which may be used for hazardous substances. The document specifies the work to be done, the precautions to be taken and the procedures to be followed in a specified order.

4.4 CONTROL MEASURES - INSTRUCTION AND TRAINING

Workers must be provided with sufficient information, instruction and training to carry out any hazardous activity safely.

The University provide various training courses in respect of this such as risk assessment, COSHH essentials and assessor training, manual handling, gas safety awareness training etc. In addition, on-the-job training in the techniques involved in the activity should be given at

departmental level and this should include adhering and conforming to best practice, relevant safety regulations, and applicable Local Rules.

Any special training required to ensure that persons involved in the work activity can operate safely should be described in this part of the form. This is particularly important so that persons can understand and comply effectively with the safe system of work / standard operating procedure, where this has been formulated (refer to Section 11.0 also). Training records should be maintained locally within the department.

4.5 CONTROL MEASURES - SUPERVISION AND LONE WORKING

Risk assessments and standard operating procedures must be provided where necessary. Supervision may be required and this should be commensurate with an individual's experience and competence for the work activity. Principle Investigators (Academic Supervisor), Trade Supervisors, and Line Managers are expected to monitor whether controls are in place and operating correctly and that adequate training has been carried out.

Similarly, Principle Investigators (Academic Supervisor), Trade Supervisors, and Line Managers are expected to have considered the issues of Lone Working and if Lone Working is considered permissible, they must have strict procedures in place in addition to any appropriate risk assessments.

4.6 CONTROL MEASURES - PERSONAL PROTECTIVE EQUIPMENT

In deciding what measures are needed to control exposure, Personal Protective Equipment (PPE) should only be used so far as is reasonably practicable after all other control measures have been taken or as secondary protection in combination with other control methods not because other control measures are inadequate on their own, but to provide workers with additional protection should any of those measures fail. PPE includes such items as; gloves, clothing (e.g. lab coats), face shields and respirators.

PPE will normally be necessary where adequate control of exposure cannot be achieved by good practice and application of engineering controls such as LEV.

It may also be required in temporary situations such as dealing with spillages.

It is important to remember that:

- PPE only protects the user if it is appropriate for the substances and task. For example the correct type of glove must be used for the certain solvents.
- PPE does not afford protection to anyone else in the vicinity – which is why it features low down on the list of hierarchy of control measures and why it is often used in conjunction with additional control measures.

All PPE provided must be appropriate to the work being undertaken and be compatible with:

- the wearer;
- the work to be done;
- any other PPE to be worn.

PPE requirements are usually found under the **Exposure Controls / Personal Protection** (Section 8) of the SDS.

a) Eye / Face Protection

Safety spectacles, goggles or full face visors may be required. Selection should be proportionate to the risk and consideration will need to be given to staff who wear prescription spectacles as to whether they require prescription safety eyewear or to wear safety eyewear over their prescription glasses. Prescription eyewear is not a suitable means of eyewear protection.

Example: Selection should be appropriate to the activity being carried out. For example full face protection rather than just eyewear is necessary when working with liquid nitrogen where there is a potential for splashes to occur on the face.

b) Gloves

Different types are available for use with different substances and activities and guidance should be sought as to the correct selection.

Examples of various glove types

i) Use of Disposable Gloves

- Cuts/lesions should be covered with waterproof dressings before putting on gloves.
- Gloves should be worn, removed aseptically and discarded appropriately to waste receptacles.
- It is advisable that the material or it's container is decontaminated before removal from the laboratory and gloves are not worn.
- A high standard of personal hygiene should be in place and hands should be washed when leaving a laboratory area. This is particularly relevant when workers are leaving laboratory areas for rest breaks and consuming any food or drink or using toilet facilities.
- Gloves should be removed before handling items likely to be used by others, eg telephones, computer equipment.
- Computer equipment in labs is on the increase in terms of being intrinsic to the running of certain pieces of laboratory equipment and therefore these may have been touched by potentially contaminated gloves/hands. Consideration has to be given to how this will be managed in order to reduce the potential for this contamination for example, use of a keyboard cover which could be more easily decontaminated.
- Suitable gloves should always be worn during decontamination procedures.

- Transfer of contamination from the outside of protective gloves to the inside is common. Users should be instructed in the correct method of removing and refitting gloves. Care must be taken to ensure staff and others such as visitors and maintenance staff are not exposed to potential contamination as a result of contamination being transferred from the protected users gloved hand to another person's hand through touching e.g. door handles, light switches, lift controls, handrails on stairs.
- Some hazardous substances, e.g. solvents, remove the natural oils from the skin so that frequent or prolonged contact may cause dermatitis or more serious skin disorders. If skin contact is likely to occur, laboratory workers should be provided with suitable gloves and dispose of them when they become contaminated, i.e. before the solvent is likely to 'break through' the glove material. HSE's publication *Health risk management: A guide to working with solvents* provides further guidance on selecting suitable glove materials for work with a number of the most commonly used solvents.
- Gloves are often used to provide protection against skin contact with hazardous substances. There are 3 main issues which have to be considered when choosing and using gloves as a control measure;
  - ❖ Permeation;
  - ❖ Penetration;
  - ❖ Degradation.
- Disposable gloves have a limited lifespan and where they are incompatible with the chemical which the user is working with it can lead to exposure for the wearer. Exposure could lead to serious skin conditions or where the chemical is lipid permeable systemic conditions dependant on the extent of exposure. The reference section provides useful information including posters which can be displayed with regard to checking for skin conditions. Laboratory workers should also be advised about the appropriate course of action should they be concerned and the Occupational Health Service can provide advice in this area.
- In considering the type of glove to be worn you must also consider such aspects as latex allergy and how this will be managed. As with any control of risk the best mechanism is to eliminate it. Although latex gloves have many benefits for their use, allergies can cause considerable distress to the sufferer. Low protein and powder free versions of disposable gloves are available. Therefore consider the alternatives on the market which are also suitable for protection against the risk associated with the work activity.

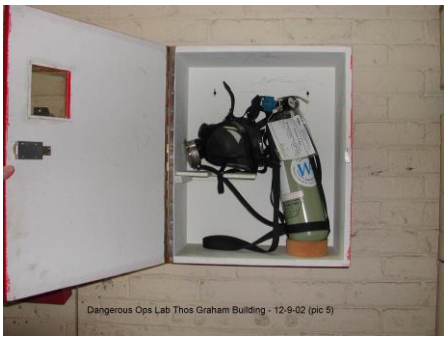
c) Respiratory Protection

Disposable face masks (known as filtering face piece or FFP) for respiratory protection against particulate material, half-masks for protection against particulate material, organic or acid vapours and full face masks will require guidance to be consulted as to suitability. Guidance will also be required on face fitting and maintenance issues.

If a substance presents an inhalation risk, you must remember that facemasks only protect the user and not any other personnel nearby, therefore the use of the control measures higher up the hierarchy of measures must take precedence over PPE.

Where selection of respiratory protective equipment is concerned, the relevant standards are the EN (European Union) ones (e.g. EN149 standard for filtering face pieces) rather than the NIOSH (US) standards. **It should be noted that when respiratory protection is advised in this section, it does not mean that this is a pre-requisite.** The quantity of substance and characteristics of the operation need to be taken into account and other forms of exposure control such

as LEV should be used in preference.



d) Clothing

There are different types of laboratory clothing available. For example, lab coats may have open cuffs which could permit substances to run down the arm and possibly contaminate outer clothing. Other laboratory coats may have closed cuffs which help to prevent substances getting onto the skin of the wrist area and spreading along the length of the arm.

Protective laboratory clothing should be:

- Appropriate for the work, substances, activity and individual.
- Regularly inspected for damage for example frayed cuffs could be a hazard if they were to get caught in moving parts of machinery or on equipment or furniture edges.
- Regularly laundered or replaced.
- Stored in designated areas. They should not be stored in lockers, cupboards or on the same coat hooks or stands as personal clothing.
- It should be fastened up when in use.

Protective laboratory clothing should not be:

- Worn outside the laboratory area, for example in rest areas, staff rooms, offices, tea/coffee areas, libraries and toilets.

4.7 CONTROL MEASURES - MONITORING AND HEALTH SURVEILLANCE

Monitoring is necessary when any of the following circumstances apply:

- When failure or deterioration of the control measures could result in a serious health effect, either because of the toxicity of the substance or because of the extent of potential exposure, or both;
- When measurement is required so as to ensure that a WEL or any self-imposed (in-house) working standard is not exceeded;
- As an additional check on the effectiveness of any control measure provided in accordance with Regulation 7 of COSHH;
- In the case of the substances or processes involving the use of any substances listed under Schedule 6 of COSHH (refer to p.26 of COSHH Local Rules) such as vinyl chloride;
- When any changes occur in the conditions affecting employees' exposure which could mean that adequate control of exposure is no longer being maintained, for example if:
    - ❖ There is an increase in the quantity of a substance used.

- Changes are made to systems of work.
- New plant or equipment is introduced

Monitoring is not appropriate if suitable procedures do not exist, or cannot be devised, or it is immediately obvious from another method of evaluation that exposure is not being adequately controlled.

For the majority of work, personal and atmospheric monitoring should not be necessary for protecting health, providing sufficient thought has gone into ensuring the adequacy of control measures in relation to risks, and the control measures are properly used and maintained.

Exposure monitoring is arranged via Safety, Health and Wellbeing and carried out by a Consultant Occupational Hygienist.

The University's Occupational Health Service should be contacted in the first instance for information relating to health surveillance.

Consideration must be given, through the process of risk assessment, as to whether vaccinations should be provided or are available to users prior to working with certain biological agents or materials. Contact the University's Occupational Health Service for further advice in this area.

SECTION 5.0

5.0 RISK EVALUATION RATING

Use the information gained from the assessment and guidance notes and take into account the control measures in operation then **ESTIMATE** the risk rating using the formula below, by using the key descriptors for the **likelihood** and **consequence** outcomes. Once a risk rating has been determined, identify it's location within the matrix below and draw a conclusion.

LIKELIHOOD OF OCCURENCE

1	**Very Unlikely**	Rarely happens, may occur but only in exceptional circumstances.
2	**Unlikely**	Unlikely sequence of events and or multiple failures.
3	**Possible**	Foreseeable under normal circumstances. May have occurred previously.
4	**Likely**	Easily foreseeable circumstances, strong possibility of occurrence.
5	**Very Likely**	Common occurrence. Known or common past occurrences.

CONSEQUENCES OF HAZARD / INCIDENT / EVENT / EFFECT

1	**Negligible**	Negligible injury, illness, loss. No injury/pain or minor injury requiring first aid.
2	**Minor**	Minor injury, illness, loss possible. For example, cuts and bruises which may require first aid, but will generally have no lasting effects.
3	**Moderate**	Moderate injury, illness or loss possible such as a flesh wound, bruising etc. Up to 3 days absence possible as a result.
4	**Major**	Major injury, illness or loss possible. Requires more than 3 days off work or a hospital visit. Reportable to HSE.
5	**Extreme**	Extreme loss, single or multiple fatality, disaster or long term disability.

Risk Rating

LIKELIHOOD		CONSEQUENCES		**RATING**
……..	X	……	=	**……..**

Table 2: Risk Assessment Matrix

PROBABILITY	CONSEQUENCES				
LIKELIHOOD	Slight chance injury **NEGLIGIBLE (1)**	Minor injury/ damage **MINOR (2)**	Three day injury /severe damage **MODERATE (3)**	Major Injury/ Damage **MAJOR (4)**	Fatal/ Catastrophic **EXTREME (5)**
Very likely to occur/regular occurrence **VERY LIKELY (5)**	**5 (Medium)**	**10 (High)**	**15 (High)**	**20 (Very High)**	**25 (Very High)**
Probable/Frequent Occurrence **LIKELY (4)**	**4 (Medium)**	**8 (Medium)**	**12 (High)**	**16 (High)**	**20 (Very High)**
Possible Occasional Occurrence **POSSIBLE (3)**	**3 (Low)**	**6 (Medium)**	**9 (Medium)**	**12 (High)**	**15 (High)**
Remote Rare Occurrence **UNLIKELY (2)**	**2 (Low)**	**4 (Medium)**	**6 (Medium)**	**8 (Medium)**	**10 (High)**
Improbable Remote Occurrence **VERY UNLIKELY (1)**	**1 (Low)**	**2 (Low)**	**3 (Low)**	**4 (Medium)**	**5 (Medium)**

No.	Risk Level	
17-25	Very High	**STOP** – You must re-evaluate and take steps to reduce the risk immediately. Consider if you can reduce to a lower level by methods such as elimination, substitution, applying engineering controls etc. The activity should not proceed until the risks are adequately controlled. Does this work need to be done at all? Does it need to be done this way?
10 - 16	High	**CAUTION** - Review existing controls and confirm risk rating. Reduce risk as soon as possible.
4 - 9	Medium	Suitable control measures must be used when undertaking this work activity.
1- 3	Low	**PROCEED** - No control measures are normally required when carrying out this work activity. However, due caution and care is required at all times.

SECTION 6.0

6.0 HANDLING, STORAGE AND TRANSPORT

a) Handling and Storage

These issues are addressed in the **Handling and Storage** (Section 7) of the SDS.

A decision will need to be made as to what can be:

- Stored on open shelves in the laboratory.
- Stored in flammables cabinets.
- Contained to prevent drips and leaks.
- Held under lock and key.

Note: Although flammable substances do not come under COSHH, they do come under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) and will therefore need to be assessed separately under these regulations.

Generally, the following points should be noted and applied as necessary when considering storage:

- Stock quantities of flammables should be kept to a minimum where possible.
- Flammables should be held in fire-rated metal cabinets.
- Acids, alkalis and non-flammable organic liquids should be adequately segregated from each other in suitably resistance cabinets equipped with drip trays.
- A good method of minimising the risk of leakage from Winchester style containers is to leave the primary glass container inside the secondary screw-capped transport container.
- All cabinets should bear suitable signage.
- Bulk solvents should be stored in suitable dedicated storage areas, preferably outside of the building if possible.
- Toxics, carcinogenics, controlled drugs etc. should be stored in appropriate lockable "poisons" cabinets.
- Solids presenting lesser hazards can be stored on open shelving (within easy reach).
- Substances that react violently when mixed should be segregated (information can be found under the **Stability and Reactivity** (Section 10) of the SDS.

b) Transportation

Transportation details can be found in the **Transport Information** (Section 14) of the SDS.

This information is of most use to the supplier and will not normally concern University staff unless there is an intention to transport any hazardous chemicals between buildings or externally from the University which will bring the operation within the scope of various transport regulations. The University has ADR trained drivers that are used when transporting hazardous substances such as waste solvent materials between buildings.

For information the abbreviations on the Transport Information section of the MSDS are as follows:

Table 3: Transport Document Abbreviations

Abbreviation	Description
RID/ADR	Refers to regulations for rail and road transport respectively.
IMDG	Refers to regulations for transport by sea
IATA	Refers to regulations for transport by air
UN-No.	A unique number which identifies the substance in question.
Class No.	Refers to the hazard classification for transportation purposes.
Packing Group	Refers to the Packing Group that the substance falls into: PG I = high, PG II = medium and PG III = low.
Proper Shipping Name	The description of the substance for inclusion on packaging and documentation.

If there is an intention to transport chemicals between buildings or out with the University, Safety Services should be consulted if there is any doubt as to whether the substances and quantities fall within the scope of the transport regulations.

For transport within the University, the ADR transport regulations and COSHH apply. Transfers between rooms or laboratories will generally require that simple practical precautions are taken and include the following measures:

- The use of sealed secondary containment – do not carry primary containers by hand through “public areas”.
- Do not wear disposable gloves in “public” areas where there is a risk of contaminating door handles, lift buttons etc. with hazardous substances. Gloves should be removed once samples have been placed in secondary containment and a new pair put on when the destination is reached.
- Solvent or acid Winchester bottles should not be carried by the neck, but by the use of suitable carriers.

SECTION 7.0

7.0 WASTE DISPOSAL ROUTES

Waste residues can present a risk to health, therefore, please ensure you have considered any hazards presented by the residual waste as part of the risk assessment process.

It is up to the Head of Department to ensure that adequate chemical management procedures are in place to ensure proper and safe disposal of all hazardous waste materials. The University operates a number of waste management services for the disposal of chemical, radioactive and biological waste materials. Disposal methods should be in line with any recognised or specific disposal procedures for the materials .e.g. from SDS, University procedures and Local Rules.

Waste disposal may be found under the **Disposal Considerations** of the SDS (Section 13). This section does require interpretation as the language may be skewed towards the requirements of other countries if the SDS has not been generated in the UK and it often contains unhelpful statements such as “*burn in a chemical incinerator equipped with an afterburner and scrubber*”.

In reality, there are really only two main options for disposal in the University for hazardous waste – discharge to drain or disposal via the Specialist waste services: Clinical waste service for biological waste and Hazardous waste service for chemical and solvent waste to an external waste contractor.

If you are unaware of the appropriate procedure for disposal of biological and chemical waste, then please contact your Departmental Safety Convenor or Safety, Health and Wellbeing for advice.

Waste chemicals should not be allowed to accumulate on the bench or in fume cupboards. They should be labelled appropriately and stored in a suitable place (e.g. solvent cabinet) until disposal arrangements have been made.

SECTION 8.0

8.0 SPILLAGE / EMERGENCY PROCEDURES

Contingency planning is required to limit the extent of the risk arising from an uncontrolled release of a hazardous substance and for regaining control as quickly as possible, e.g. spillage on the open bench.

Any specific emergency procedures which would be required from an accident / incident / serious spillage / acute process failure or threatened significant exposure should be included under this section. These procedures will be dependant upon the potential risk involved.

Information on how to deal with spillages may be found under the **Accidental Release Measures** of the SDS (Section 6).

This section also requires interpreting with caution. The advice to "*evacuate the area*" is generally sound. A decision must be made as to the extent of the location(s) or area(s) to be evacuated. For the kind of scenarios likely to be encountered within the University, this will often be the immediate area i.e. the laboratory where the event has occurred, though each incident would need to be judged according to circumstance. For example: a spillage within a fume cupboard is obviously far easier to deal with than a spillage on the laboratory floor. Using *Safebreak* bottles (plastic coated to contain contents and broken glass in the event of a drop) reduces the likelihood of a spillage in the first place.

Be cautious of the advice to "wear self-contained breathing apparatus", as it is more appropriate for emergency services to be alerted to large scale spillages that demand this type of equipment. However, there are some high risk areas within the University to which this is appropriate. For small spillages it may be more appropriate to vacate the area until the liquid has evaporated and dispersed to the point that it is safe to re-enter.

a) Chemical Spillages

Laboratories and workshops are generally likely to have one or some of the following depending on the chemicals in use:

- Spillage absorption kits or spillage absorption granules to deal with small spillages of liquids.
- Spillage absorbent booms to deal with larger liquid spills.
- Neutralisation chemicals and materials for treating certain types of strong acid and base spillages.

b) Biological Material Spillages

For spillages of biological materials, appropriate methods for inactivation and validation are required. The two principal methods of inactivating biological material are chemical inactivation (disinfectant use) or steam sterilisation (such as autoclaving processes). See the OHS Biological Safety Standard for further information. OHS Operational Control Standards - University of Strathclyde

c) Disinfectants

Suitable disinfectants should be available at all times and diluted and used according to the manufacturer's instructions.

Intimate contact for a sufficient period of time must be maintained between the disinfectant and the contaminated article. Air bubbles must be removed and articles totally immersed.

See the OHS Biological Safety Standard for further information. OHS Operational Control Standards - University of Strathclyde

d) Autoclaving

It is well established that a cycle of 121^{o}C for 15 minutes, with full steam penetration to the centre of the load will normally be sufficient to render most materials sterile. However, the sterilisation times and temperatures vary depending on the type of load i.e. solid, liquid, porous, equipment decontamination and will require the appropriate validation of each of these cycles where required.

See the OHS Biological Safety Standard for further information. OHS Operational Control Standards - University of Strathclyde

e) First Aid

The **First Aid Measures** section of the SDS (Section 4) is largely self explanatory. Departments have departmental First Aiders which should be made known locally. If required, call **Ext. 2222** to alert the Security staff who are the trained First-Aiders for the University.

Any specific requirements that may be required such as antidotes or specified hospitals for treatment should be included within this section.

SECTION 9.0

9.0: SUBSTANCES SUBJECT TO OTHER LEGISLATION

Though not strictly a health issue, it is worth recording here whether any of the substances in use are subject to other legislation such as the Chemical Weapons Act or Home Office legislation concerning drug precursors, since this may impact upon licensing, security and ordering procedures.

There are certain biological agents which require to be notified to the authorities under specific legislation, principally The Anti-Terrorism, Crime and Security Act 2001 and the Specified Animal Pathogens Order 1998. Therefore you must ensure that the appropriate Schedule to these pieces of legislation is checked as these agents cannot be brought into the University prior to the appropriate authorities being notified.

a) Risk Assessment

All work activities should be covered by a General Risk Assessment. This should be completed on the eRISK system and should identify all hazards in relation to the work activity (e.g. electrical, manual handling, slips and trips) as well as any substances hazardous to health.

b) Dangerous Substances and Explosive Atmospheres Regulations (DSEAR)

Some hazardous substances may also come under DSEAR. These include substances with the following properties:

- Explosive
- Oxidising
- Extremely flammable (flashpoint below 0^{o}C).
- Highly flammable (flashpoint below 32^{o}C)

- Flammable (flashpoint below 55^{o}C)

Note: there are maximum volumes of extremely flammable and highly flammable materials that can be stored and if in doubt, advice should be sought from the Fire Safety Adviser, Safety Services. The DSEAR principles of control largely mirror those of COSHH with regard to laboratory scale operations, so it may be appropriate to consider them together.

If any of the substances used in this activity fall into any of the above categories, please complete a
DSEAR risk assessment form. Details can be found on the Safety, Health and Wellbeing website. OHS Operational Control Standards - University of Strathclyde

c) Anti-Terrorism, Crime and Security Act 2001 (ATCSA)

The Act is concerned with the holding of certain pathogens and toxins which could be used in an act of terrorism to endanger life or cause serious harm to human health. The provisions set out in Part 7, Schedule 5 places an obligation on organisations holding stocks of specified disease-causing micro-organisms and toxins to notify their holdings to the Home Office. In order that we can notify the Authorities of Schedule 5 substances held within the University, Safety, Health and Wellbeing require departments to notify us:

- Prior to any of these biological agents or toxins being brought into the University.
- Where there are any changes in the location of use.
- When these agent(s) or toxin(s) are no longer required and all cultures and/or stocks have been destroyed.

The web link below lists the relevant biological agents involved:
The Schedule 5 to the Anti-terrorism, Crime and Security Act 2001 (Modification) Order 2007 (legislation.gov.uk)

If any of the substances listed here are used in this activity, please ensure the Biological Safety Adviser has been notified.

d) Home Office Drug Precursors or Controlled Drugs

Drug Precursors

Departments which use precursors or chemical substances which could be used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances are required to complete a user declaration to the Home Office. Further details, including the substances in question can be obtained via the following web link: Precursor chemical licensing - GOV.UK (www.gov.uk)

Controlled Drugs

Departments producing, supplying, possessing, importing or exporting controlled drugs need to apply the Home Office for a licence to do so. Further details can be obtained from the following links
Web site: Drugs licensing - GOV.UK (www.gov.uk)

e) Specified Animal Pathogens Order 1998 (SAPO)

The purpose of the Specified Animal Pathogens Order 1998 is to prevent the introduction and spread into Great Britain of specified animal pathogens which, if introduced, could cause serious disease and economic loss to the British livestock and poultry industries.

The Order prohibits ‘any person from having in his possession any specified animal pathogen listed in Part I of the Schedule to the Order or any carrier in which he knows such a pathogen is

present'. It also prohibits the introduction into any animal or bird of any pathogen listed in the Schedule to the Order. The notification form and relevant information is available at the address below. Please ensure that the University Biological Safety Adviser is notified prior to any submission. Work involving human and animal pathogens (hse.gov.uk)

f) Genetically Modified Organisms (Contained Use) regulations 2014
All projects involving GM microorganisms or animals must be covered by a GM risk assessment. This must be submitted and approved by the GMSC prior to work commencing. In some cases notification along with a fee must be paid to the HSE. Genetically Modified Organisms (GMOs) (hse.gov.uk)

g) Ethics
Some projects involve human beings and may need ethics approval before work commences. Contact ethics@strath.ac.uk for further information.

SECTION 10.0

10.0 SUMMARY OF ASSESSMENT RECOMMENDATIONS

This should be a very brief overview of the main findings of the assessment.

SECTION 11.0

11.0 SAFE METHOD OF WORK

Where an assessment is deemed to be of low risk, where the work activity is straightforward and clear and verbal instructions can be easily given and followed, a written system of work is unnecessary. In all other cases a system of work (SSW) or standard operating procedure (SOP) will be required.

The system of work is a statement of how the work activity is going to be carried out safely. It should specify the ways in which the hazardous substances are used or handled and should give sufficient details to identify the precautions necessary to control the risks that arise from working with the hazardous substances.

Where appropriate SSW/SOPs would be included in this section and control measures relating to COSHH incorporated. Otherwise it is necessary to cross reference to SSW and SOPs elsewhere again ensuring they include COSHH control measures.

SECTION 12.0

12.0 USERS AND AGREEMENT OF THE COSHH ASSESSMENT

- All individuals who are working to the risk assessment must sign and date to acknowledge that they have read and are aware of the risks and the control measures taken to safeguard the health of them and others who may be affected by the work activity involving hazardous substances.
- All individuals signing the assessment are therefore agreeing to carry out the activity in accordance with the system of work / standard operating procedure and the specified control measures identified.

- Users must notify the Principle Investigator (Academic Supervisor), Trade Supervisor or Line Manager if any of the specified control measures fails or becomes faulty.
- If this assessment is modified in any way, the assessment must be reviewed and all current signatories must sign and date any revisions to confirm they are aware of the modifications made.

APPENDIX 1: References

a. COSHH

- HSE COSHH – A Brief Guide to the Regulations http://www.hse.gov.uk/pubns/indg136.pdf

b. Risk Assessment

- HSE Five Steps to Risk Assessment http://www.hse.gov.uk/pubns/indg163.pdf

c. UK REACH

What REACH means for users of chemicals - UK REACH: registration, evaluation, authorisation and restriction of chemicals - HSE

d. Personal Protective Equipment

- HSE - Personal Protective Equipment Personal protective equipment (PPE) at work (hse.gov.uk)

e. Gloves

- HSE Selecting Protective Gloves for work with Chemicals: Guidance for employers and health and safety specialists Leaflet INDG330 http://www.hse.gov.uk/pubns/indg330.pdf

f. Skin protection

- Dermatitis information - HSE - Skin at work: Work-related skin diseases: dermatitis
- Site contains useful posters such as how to remove gloves http://www.hse.gov.uk/skin/information.htm
- Action plan http://www.hse.gov.uk/skin/actionplan.htm

g. Latex Allergy

- HSE web site HSE - Skin at work: Latex allergies
- Glove selection guide http://www.hse.gov.uk/pubns/indg330.pdf

h. RPE

- Respiratory Protective Equipment at Work - Respiratory protective equipment at work: A practical guide HSG53 (hse.gov.uk)
- Guidance on Respiratory Protective Equipment RPE (fit testing) - Guidance on respiratory (hse.gov.uk)

APPENDIX 2: Sections contained within a typical MSDS

1 Identification if the Substance / Preparation & company / Undertaking

2 Hazards Identification

3 Composition / Information on Ingredients

4 First Aid Measures

5 Fire Fighting Measures

6 Accidental Release Measures

7 Handling and Storage

8 Exposure Controls / Personal Protection

9 Physical and Chemical Properties

10 Stability and reactivity

11 Toxicological Information

12 Ecological Information

13 Disposal Considerations

14 Transport Information

15 Regulatory Information

16 Other Information