

# ***University College Dublin***



## ***School Of Chemistry***

### ***Safety Statement***

***Rev 8. Issued November 2023***

***This document must be read in conjunction with the University Parent Safety  
Statement***

***(<https://www.ucd.ie/sirc/healthsafety/safetystatements/>)***

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### **Revision History**

- Revision 0: Issued January 2009.
- Revision 1: Issued September 2010. Changes made to list of first aiders and key contact staff. Updating of emergency response plans to make reference to shelter-shut-listen protocol. Updating of list of risk assessments.
- Revision 2: Issued July 2011. Changes made to list of first aiders and key contact staff.
- Revision 3: Issued August 2014. Changes made to emergency response information, contacts and list of first aiders.
- Revision 3: Issued September 2015. Changes made to contacts and list of first aiders.
- Revision 4: Issued April 2016. Contact details and first aider lists updated. All references to Chemical Biology removed.
- Revision 5: Issued June 2017. Contact details and first aider lists updated. Elements of 2015 revision incorporated into 2016 revision. Incorporation of sections on waste management, laboratory etiquette, chemical storage, cryogenic liquids and unattended experiments. Amendment of appendices to include copies of risk assessment templates and the unattended experiment form.
- Revision 6: Issued May 2018. Contact details and first aider lists updated. Links updated in accordance with changes to School of Chemistry website. Edits made to risk assessment methodology. Notes on use of nitrogen gas added to Section 15.0 – Procedure for Unattended Experiments. Importance of physical risks and role of SIRC-provide documents emphasised in Sections **17.1** and **17.2**.
- Revision 7: Issued September 2018. **Section 3.0** (Management of H&S within the School) expanded. **Section 6.3** (Gas Alarm Activation) edited to reflect varying models of gas panel. Section on compressed gas safety (**15.0**) added. **Section 8** (Out of Hours Access) expanded. **Section 9.0** (Postgraduate Induction Training) expanded.
- Revision 8: Issued September 2023. Hyperlinks updated in line with changes to School of Chemistry and SIRC websites. **Section 4** (Key Contact Details) updated. **Section 11.0** (Waste Management) updated to reflect new Stores compound layout and access procedures, as well as guidelines for corrosive waste disposal. **Section 13.0** (Storage of Chemicals) updated to include revised storage recommendations and policy on legacy materials. **Section 14.0** (Handling of

Cryogenic Liquids) updated to reflect new Stores compound layout and access procedures.

**Section 17.0** (School of Chemistry Register of Risks) updated to include new assessments from SIRC and section on Engineering and Workshop risk assessments.

## 1. Introduction

This document is designed to fulfil the requirements of Section 20 of the *Safety, Health and Welfare at Work Act (No. 10 of 2005)* which requires all employers to prepare a *Safety Statement*.

This document applies to the operations of *The School Chemistry* located on the Belfield Campus of *University College Dublin* and to its field operations. The School is in the main located in the *Science South Building on the Belfield Campus*.

This document when read in conjunction with the *University Parent Safety Statement* and relevant risk assessments outlines how the health and safety of staff, students and visitors to the school will be safeguarded.

This document will be subjected to review on a regular basis and also when changes in work practices necessitate it.

All persons are strongly encouraged to develop local area safety plans and procedures to complement the contents of this document where they deem it necessary or useful to do so. In particular, researchers are required where necessary to complete their own risk assessments to complement the ones prepared as part of this document (refer to Section 12.0 below).

## 2. School Description

The *School of Chemistry* is a state of the art facility engaged both in the education of students and the carrying out of related cutting edge research. The School contains teaching and research laboratories along with ancillary facilities. The School offers Honours BSc degrees in Chemistry and in Medicinal Chemistry & Chemical Biology. Lecture courses and associated laboratory work in organic, physical, inorganic and organometallic chemistry are complemented by more specialist offerings in, among others, environmental chemistry, materials science, electrochemistry, biopolymers and nanochemistry. The School is home to approximately 24 research groups with interests spanning a wide range of chemical sciences.

Further details are available on the School website <http://www.ucd.ie/chem/about/healthandsafety>

### 3.0 Management of Health and Safety within the School

University College Dublin is committed to providing a safe place of work for all of its employees and to providing a safe environment for students in which to carry out their studies and associated activities. The University is also committed to ensuring that, in so far as is reasonably practicable, its actions and activities do not have a negative impact on the safety of any third parties.

The Head of School is responsible for ensuring or making arrangements to ensure that the activities undertaken within the school are carried out in a safe manner without undue risk to the health and safety of University employees, students or any third parties.

All employees have a duty to cooperate with the University in all matters of health and safety at work and not to endanger the safety of themselves, their co-workers or any other parties through any act or omission that they may undertake. This cooperation is essential to the effective management of safety within the University. In accordance with safety legislation the University expects all employees to take responsibility for their own safety whilst at work and to perform their duties in a safe manner and in accordance with all relevant safe working procedures. The School of Chemistry supports this approach through the provision of an extensive series of documents [on the School website](#), covering safety policies, standard practices and proper emergency responses in the department. These safety policies and procedures apply to all staff, students and visitors in the School, all of whom are required to be aware of these documents and abide by them.

The University encourages employees to become actively involved in safety matters and welcomes all suggestions or comments regarding safety which can be made to the local Safety Committee, where they can be dealt with most efficiently.

*Refer to the [University Parent Safety Statement](#) for further details*

## Safety Statement

## 4. Key Contact Details

<u>Title</u>	<u>Name</u>	<u>Contact Details</u>
Head of School	Prof. James Sullivan	(716) 2135
Head of UCD SIRC	Dr. Peter Coulahan	(716) 8768 / 8771
SIRC Manager	Ms. Sarah Carry	(716) 8770
Chair of Local Safety Committee/ Head of Safety	Prof. Grace Morgan	(716) 2295
School Safety Coordinator	Dr. Raymond Smith	(716) 2099
Hazardous Waste Coordinator	Mr. Patrick Waldron	(716) 2301
Emergency Response Coordinator/ Chief Fire Marshal	Mr. Hans Eckhardt	(716) 2289
Radiation Protection Officers	Dr. Julia Bruno	(716) 2959
	Prof. Tony Keene	(716) 2302
Trained First Aiders	(See below)	
Fire Alarm Maintenance	Contact UCD SIRC Office	(716) 8768 / 8771
Fire Extinguisher Maintenance	Contact UCD SIRC Office	(716) 8768 / 8771
Student Health Centre		(716) 3133
UCD Chaplaincy		(716) 8372
UCD 24 HR Emergency Line		(716) 7999
Campus Duty Manager		(716) 7666
Campus Services		(716) 7000

***Emergency First Aid treatment and equipment is available from the local Services Desks and via the 24 hour Emergency line 716 7999***

**School of Chemistry First Aiders**

During normal working hours (9:00 – 17:00) the following personnel may be contacted if first aid is required:

<b>Name</b>	<b>Extension No.</b>	<b>Location</b>
Mr. Patrick Waldron	(716) 2301/2288	S0.96/S1.61
Dr. Raymond Smith	(716) 2099/2284	S0.96/S3.50
Mr. Hans Eckhardt	(716) 2289/2288	S0.96/S1.61
Mr. Colin Evesson	(716) 2298/2284	S0.96/S3.50
Ms. Kristy Stanley	(716) 2341/2284	S0.96/S2.76
Dr. Alexander Doran	(716) 2074	S0.88

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Outside normal working hours the following trained personnel may be available:

<b>Name</b>	<b>Extension No.</b>	<b>Location</b>
Olivia Breen	(716) 2072	A1.01
Noheem Kadiri	(716) 2072	A1.01
Qiwei Wang	(716) 2416	S1.48
Robert Redmond	(716) 2108	L2.16
Zoe Byrne	(716) 2980	L3.12
Niamh Lehane	(716) 2981	L3.16
Fionn McNeill	(716) 2981	S3.16
Kate Donaghy	(716) 2316	A3.01
Aoife Martin	(716) 2800	S3.48
Kathryn Yeow	(716) 2800	S3.48
Niamh Disney	(716) 2821	S3.48

#### **School of Chemistry Fire Marshals**

<b>Name</b>	<b>Extension No.</b>	<b>Location</b>
Dr. Yannick Ortin	(716) 2443	L0.10
Dr. Jimmy Muldoon	(716) 2272	S0.63
Mr. Patrick Waldron	(716) 2301	S0.96/S1.61
Ms. Susan Wilson	(716) 2853	S1.08
Ms. Sara Sekula	(716) 2963	S1.10
Dr. Raymond Smith	(716) 2099	S0.96/S3.56
Mr. Hans Eckhardt	(716) 2289/2288	S0.96/S1.61
Dr. Paul Evans	(716) 2291	L2.08
Dr. Alexander Doran	(716) 2074	S0.88

There are Automated External Defibrillators (AED's) in the following locations in the Science Complex:

- Science South – Ground floor entrance lobby near stairs
- Science East – Ground floor lobby at entrance to Science Hub
- Science North – Ground floor entrance lobby by lift
- Science West – First floor entrance lobby

A full list of locations can be found on the [UCD Services Map](#). Services staff have been trained in the use of AED's. Contact extension 7999 (UCD 24 hr Emergency Line).

***First Aid and further AED's are also available through the 24 hour Emergency line 716 7999***



### 5.0 Employee Safety Representation

*University College Dublin* is committed to involving and consulting employees in the management of health and safety within the University. To this end there is an active *School of Chemistry Safety Committee*. This committee functions as a forum for employees within the School to raise safety concerns and for the *University SIRC Office* and School Management to impart information on health and safety matters. Representation on the committee is drawn from a broad spectrum of areas within the school. All persons sitting on the committee are classed by the University as *Employee Safety Representatives* as outlined in Part 4 of the *2005 Safety, Health and Welfare at Work Act*. Employees have a right under this legislation at any time to elect from their number such *Employee Safety Representatives*. Currently however, within the School all persons wishing to act as *Employee Safety Representatives* are facilitated in doing so and consequently sit on the committee without the need for election by their peers. Any persons wishing to act as *Employee Safety Representatives* should contact the Head of School.

For further information on current membership of the committee and its functions, contact should be made with the committee chair Prof. Andrew Phillips (Ext. 2075).

### 6.0 Emergency Response Plans

#### Introduction

The purpose of these emergency response plans is to detail the steps and responses that must be taken in the event of an emergency within the School. Where deemed necessary; individual units within the school may further develop these plans to take account of the individual circumstances in their areas.

The following are deemed as emergencies within the School:

1. Fire
2. Natural Gas Leak
3. Laboratory Gas Alarm Activation
4. Loss / Spillage Of A Chemical Agent
5. Loss / Spillage Of A Biological Agent
6. Chemical Agent Exposure
7. Biological Agent Exposure
8. Personal Injury
9. Major Campus Emergency

## 6.1 Fire

### ***If you hear the fire alarm:***

1. Do not panic, but prepare to leave the building.
2. The alarm will sound continuously; leave the building immediately in an orderly fashion by following the green man running signs to the nearest exit. Please note that this may not be the same way that you entered the building.



3. Classes in session must be dismissed and students directed to leave.
4. Persons in laboratories and workshops should make their area safe before leaving by turning off equipment where possible, closing chemical containers, securing biological agents, etc.
5. Do not use the lift.
6. Do not go back to your working area for any reason.
7. If for any reason you are unable to leave the building make your way to a protected stairwell or a room with an external window and shut the door. If possible inform the emergency line (**ext. 7999**) or a colleague of your location and the reason why you cannot safely exit the building.
8. If safe to do so, nominated *Fire Marshals* should inspect their designated areas.
9. Proceed to your designated emergency assembly following your departure from the building.  
The assembly areas for the Science Complex are:

**Car Park Beside Veterinary Science Centre**

**Beside the Lake (CSCB End)**

**In Front of the Church**

**Pedestrian Area in Front of Computer Centre**

10. Report any knowledge you may have of missing or injured persons to a *Fire Marshal*.
11. Return to the building only after the *Chief Fire Marshal/ Services Personnel* give the all clear signal.

### ***If you observe a fire:***

1. Activate the fire alarm by breaking one off the red wall mounted break glass units
2. If it is safe to do so and you have been trained to do so the fire may be tackled using a suitable fire extinguisher, but only if this does not place any person at risk of injury.
3. If you decide to fight a fire ensure that you have a safe and clear means of escape from the fire at all times.

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4. In the case of chemical fires be aware that many chemicals give off poisonous fumes under fire conditions. Only fight chemical fires if you are certain that it is safe to do so and that the products of combustion can be avoided.
5. In the event that you cannot fight the fire or the fire begins to get out of control evacuate the area immediately.

Fire Extinguisher Types

*Aqueous Film Forming Foam*

- Red cylinder with a cream coloured label.
- Suitable for fighting paper, wood, fabric, etc fires.
- Not suitable for use on electrical fires.
- Suitable for use on most chemical fires.

*Carbon Dioxide*

- Red cylinder with a black label and a black discharge horn.
- Suitable for fighting electrical fires.
- Not suitable for paper or fabric fires as the gas is discharged under pressure and can blow embers around.
- Not suitable for use in a confined space due to the asphyxiant nature of the carbon dioxide.
- Discharge horn can get very cold during use.

*Dry Powder*

- Red cylinder with a blue label.
- Suitable for all types of fires including electrical and chemical.
- Can be very messy and can damage electronic equipment.

To Use A Fire Extinguisher:

- Remove from wall bracket if necessary.
- Break the seal and remove the pin.
- Squeeze handle to test the extinguisher.
- For carbon dioxide extinguishers manually turn discharge horn into position before testing. Once used do not touch the discharge horn again as it gets very cold.
- Fight fire by aiming extinguisher at the base of the fire.

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## **6.2 Gas Leak**

- In the event that a natural or laboratory gas leak is suspected in Science South/CSCB, then the First Response Room (ext. 1200) must be contacted
- In the event that the First Response Room cannot be contacted, or for suspected gas leaks in all other buildings, the 24hr Emergency Line (ext. 7999) may be contacted.
- The area should be evacuated.
- Only authorised personnel may interfere with gas safety systems.

## **6.3 Laboratory Gas Alarm Activation**

- In the event of an activation of a laboratory gas alarm, follow local gas alarm response procedures. As gas panel models vary throughout the Science complex, please see the Emergency Response section of the School safety webpage for procedures relating to each part of the building (<https://www.ucd.ie/chem/about/healthandsafety/>).

## **6.4 Loss / Spillage of a Chemical Agent**

[In the case of a spill or leak of a chemical agent](#) the following procedure should be followed:

- In the event that a chemical is spilled or is discovered to have leaked then all persons should be verbally requested to leave the affected area immediately.
- Where possible windows should be opened but all doors shut be kept closed.
- If the spilled material is flammable all possible sources of ignition, including electrical appliances should be turned off if safe to do so.
- The SDS for the chemical concerned should be consulted before dealing with the spillage and the information contained therein utilised to ensure a safe cleanup response.
- For large spills (>10 litres / kg) the University SIRC Office should be informed by dialling 8768 / 8771 or 7999 on an internal telephone.
- In the event that the spillage is deemed safe to deal with a spill kit should be obtained.
- Suitable personal protective equipment should be donned by the persons dealing with the spillage. At the very least safety glasses, gloves and a lab coat should be worn. All spills must be attended by at least two persons.
- The source of the leak should be ascertained and if possible and safe to do so closed or sealed. Any damaged containers should be removed and repackaged if possible.
- In the event of liquid spills adsorbent pads or vermiculite should be spread over the spilled material until it is covered. If necessary absorbent booms should be used to prevent the spillage spreading further.

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- Using a dust pan and brush or similar the spilled material along with the absorbent material should be collected and placed into the bag / container contained within the spill kit.
- In the event of the spillage of a solid material the material should be collected using a dust pan and brush and placed into the bag / container contained within the spill kit.
- All wastes and all contaminated items generated by spillages must be disposed of in a suitable manner.
- When dealing with spillages the inhalation of large amounts of vapour or air borne contaminants should be avoided. In the event that a large amount of material is spilled then specialist assistance may be required. Respiratory protection may be required when dealing with large spillages. Persons must note that non air fed respiratory protection is not a substitute for decreased ambient oxygen levels.
- Some chemicals require specialist responses, e.g. elemental mercury, cyanides, [hydrofluoric acid](#), strong acids, etc. Reference should be made to a materials' SDS before it is used in the laboratory for the first time and if required any recommended specialist spill response equipment should be sourced and held in a suitable location.

### **6.5 Loss / Spillage of a Biological Agent**

For spillages where aerosols are not likely to be produced persons should don the necessary PPE (gloves and a lab coat at a minimum) and treat the affected area with an appropriate dry disinfectant or cover with tissue paper and apply a liquid disinfectant. The treated area should be allowed to remain long enough for the disinfectant to take effect before being cleaned and the waste material being disposed of accordingly. As a rule, *Virkon* and *Presept* should be used for the treatment of spillages of biological agents. If a different disinfectant is required then this should be indicated in any relevant risk assessment.

Where a spillage may give rise to aerosols, e.g. during the rupture of a sample tube in a centrifuge, the area must be evacuated and the droplets allowed time to settle. Persons then wearing appropriate PPE (gloves, lab coat and barrier face mask) may enter the affected area treat the spillage. In some cases extensive decontamination of the working area may be required. If deemed necessary testing for the presence of the biological agent can be done following the completion of the disinfectant procedure. Respiratory protection may be required when dealing with spillages that have generated aerosols.

## 6.6 Chemical Agent Exposure

Some agents require specialist first aid responses, e.g. hydrofluoric acid, cyanides, etc. Reference should be made to a material's SDS before it is used for the first time and if required any specialist first aid equipment should be sourced and held in a suitable location and any unusual first aid responses should be noted.

The following are general guidelines for treating exposures to chemical agents.

### *Inhalation*

- Following exposure to an airborne chemical; affected persons should be removed from the source of exposure to fresh air.
- At no time should persons place themselves at risk when trying to remove affected persons from the source exposure.
- If breathing stops then artificial respiration should be administered – note this may not be possible if corrosive or toxic materials are on the lips or in the mouth.
- If available, oxygen may also be administered.
- Any exposure which results in vomiting or unconsciousness must be referred to a medical practitioner.

### *Skin Contact*

- Remove any contaminated clothing and wash (not scrub) the skin with soapy water.
- If required utilise an emergency shower if one is available.
- If the skin blisters or becomes reddened then seek medical advice.

### *Eye Contact*

- Wash out eyes with copious amounts of fresh water and seek medical advice.

### *Ingestion*

- Refer to the specific SDS. Always seek medical advice.

For further information contact the Poisons Information Centre. Telephone 01-837 9964 / 01-837 9966.

If seeking medical advice after a chemical exposure ensure that the patient has in their possession a copy of the relevant SDS.

### 6.7 Biological Agent Exposure

Any person who suspects that they may have been exposed to a biological agent must contact the SIRC Office (ext. 8768 / 8771) immediately. Medical assistance / advice must be sought as soon as is possible.

### 6.8 Injuries from Sharps

For needle stick / sharps type injuries:

1. Cuts caused by sharps should be treated immediately. No attempt should be made to remove broken glass from wounds. Needle stick injuries from contaminated needles should be encouraged to bleed. Wash well under running water and cover with a dry dressing. An attempt should be made to identify any chemical or biological hazard in the needle that may have been injected.
2. Apart from very minor injuries, a First Aider should be called.
3. In the event of sustaining an accident resulting in a wound:
  - Immediately wash the wound liberally with soap and water but without scrubbing
  - Do not attempt to remove any glass by hand
  - Gently encourage free bleeding of puncture wounds but do not suck the wound
  - Dry the area and apply a waterproof dressing
  - Seek medical advice if the sharp concerned was contaminated with any hazardous materials

There is no evidence available to show that using antiseptics or squeezing a wound will reduce the risk of transmission of a blood borne pathogen. Using a caustic agent such as bleach to wash a wound is not recommended.

### 6.9 Personal Injury

In the event that a person suffers an injury that requires first aid treatment then:

- Treat the injury using first aid equipment. First aid equipment can be sourced from the first aid kits located in all labs, the First Response Room (1200) or from the 24hr Emergency Line (7999)
- If necessary contact a trained first aider.
- If the emergency services are required then the 24hr Emergency Line should be contacted (7999) and the request made.

### 6.10 Campus Emergency

In the event that notification of a major campus incident is received then all staff and students should adhere to the *Shelter-Shut-Listen* model of response.

- In the event that a critical incident is notified then staff and students should **shelter** in a building, preferably in a secure area with access to a telephone and the UCD computer network. Lecturers should direct the students to remain indoors and should seek further information on their behalf via the UCD website, local Services Centre or the emergency line (7999).
- Staff should remain **shut** in their location until they are advised that the incident is over or until they are requested to leave the area.
- In the event that staff are required to evacuate an area the building fire alarm will be used to inform all building occupiers and further instructions will be given upon building evacuation.
- Unless instructed to do otherwise staff should remain indoors and **listen** for further instructions.
- Further instructions may be issued via voicemails; website; e-mail; campus siren, etc.

### 6.11 Contacting the Emergency Services

In all instances contacting the Emergency Services must be done via the *Services First Response Room* using the 24hr Emergency Line (**7999**). Services personnel will then contact the Emergency Services and ensure that they are met upon their arrival on campus and are escorted to the correct location of any incident.

***Any fire, hazardous agent spillage, exposure to a chemical agent, personal injury, etc. or near miss must be notified to the University SIRC Office using an official accident report form. Such forms can be obtained from the University SIRC Office. Contact [safety@ucd.ie](mailto:safety@ucd.ie) or ext. 8768 / 8771***

### 7.0 High Risk Activities

Before undertaking any activity that involves the use of high risk chemicals, users are strongly advised to contact the School Safety Adviser for details of any risk reduction measures that may be applicable to their work.

Notification of the use of cyanides and malodorous chemicals such as thiols/mercaptans, selenides and tellurides is mandatory, and all use of such chemicals must be carried out in accordance with [predetermined standard operating procedures](#). Appropriate advance notification of use must be given before reactions involving these compounds are started. Contact Raymond Smith (ext 2099) for further details.



### 8.0 Out of Hours Access

[Access to the School](#) during out of hours periods (i.e. 18:00 – 08:00) is at the discretion of the Head of School. All persons accessing the School during these periods must sign the Out of Hours Register. No work which carries a high risk of personal injury or property damage may be carried out during out of hours periods. Out of hours laboratory work must be subjected to a risk assessment.

### 9.0 Postgraduate Induction Training

All new staff and students are required to attend a mandatory safety induction provided by safety personnel in the School before they can begin laboratory work. This is usually scheduled for early September to coincide with the arrival of the majority of new researchers, and will cover such things as lab safety, chemical safety, SDS, risk assessment, practical firefighting, etc. In order to make sure that all members of the School are made familiar with our safety policies as soon as possible, supplementary inductions are given in January/February and June to accommodate schedule clashes, late-starting researchers and summer students. Contact Raymond Smith (ext 2099) for further details.

### 10.0 Location of Emergency Equipment

#### *Fire Extinguishers*

- Fire extinguishers are located throughout all buildings and are readily available in all locations.

#### *First Aid Boxes*

- First aid boxes are located throughout the School in all teaching and research labs.
  - [Ground Floor](#)
  - [1<sup>st</sup> Floor](#)
  - [2<sup>nd</sup> Floor](#)
  - [3<sup>rd</sup> Floor](#)
- There may be additional first aid boxes located locally - nominated local first aiders can advise on the location of your nearest first aid box.
- First aid equipment is also available via the 24hr emergency line – 7999.

#### *Automatic External Defibrillators (AED's)*

AED's are located in the following locations around the Science Complex:

- Agriculture & Food Science Entrance Lobby
- Health Sciences Entrance Lobby
- Science Centre East at Entrance to Hub

- Science Centre North Ground Floor Lobby
- Science Centre South Ground Floor Lobby
- Science Centre West First Floor Entrance Lobby

For training in the use of defibrillators please contact [aed@ucd.ie](mailto:aed@ucd.ie).

### 11.0 Waste Management

It is the responsibility of all students and researchers in the School of Chemistry to dispose of hazardous and non-hazardous waste in a safe and responsible manner. Non-hazardous materials can be disposed of in the recycling and regular waste bins located in all labs. All hazardous waste can be disposed of according to their category in specialised containers available through Chemical Stores. These containers are all barcoded and scanned for tracking purposes.

- *Liquid Chemical Waste*

Three categories:

- Halogenated
- Non-halogenated
- Corrosive



10 L waste containers should be sealed and brought to the Stores waste compound when 90% full. Any mixing of such wastes should be minimised. Liquid waste containing heavy metals should be kept separate and treated as irregular waste (see below).

Care should be taken with corrosive waste contents – mixing of acidic and basic solutions should be avoided, otherwise there is a significant risk of internal pressure build-up. Structurally compromised containers will not be accepted by Stores personnel, and any that develop issues after storage will be returned to the relevant groups for them to resolve the issue.

- *General solid waste*

Four categories:

- Non-contaminated
- Chemically contaminated
- Biologically contaminated



General waste is collected at regular intervals by the cleaning staff. Contaminated waste bags should be tied when  $\frac{3}{4}$ -full and brought to the Stores waste compound for disposal. Red bin liners should be placed in the green waste drums. Yellow liners should be placed in a

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UN-approved yellow bag before placing in the grey wheelie bins in the biological waste compound beside Science West. Under no circumstances should these contain liquids, sharps or hard plastic wastes.

- Chemically contaminated biological waste

60 L bins should be closed and sealed when full, and brought to the Stores compound for disposal. These should be placed in the grey wheelie bins in the biological waste compound beside Science West.



- *Glass/Sharps waste*

Two categories:

- Chemically contaminated sharps

60 L blue bins should be closed and sealed when full, and brought to the Stores compound for disposal. Suitable for all sharps including needles, broken glassware, broken ceramics and hard plastics.



- Biologically contaminated sharps

12 L containers for potentially infectious laboratory sharps. These should be closed and sealed when full, and brought to Stores to be placed in a fire rated container.



Under no circumstances should these contain liquids, sharps or hard plastic wastes.

- *Recognisable animal tissue*

Green waste bags available from the School Hazardous Waste Coordinator (ext. 2301) . Once filled, the bag should be placed in a cardboard box and then into a freezer. Once frozen, arrangements can be made for collection and disposal through Stores.



- *Waste silica and alumina*

These should be disposed of in old silica/alumina containers as appropriate. Once full, seal for disposal and deposit in the green waste drums in the Stores chemical waste compound.



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- *Brown glass bottles*

Empty Winchesters and clear glass bottles should be triple-washed with hot water and de-labelled. Green verification labels should then be signed and stuck to the bottles, which can then be placed (carefully – NO SMASHING!) in the glass bins in the Stores waste compound.



- *Empty plastic/aluminium containers*

All plastic and aluminium bottles should be triple-rinsed with hot water and de-labelled. These can then be disposed of in the large bins in the general waste compound beside the Chemistry nitrogen tower.



- *Irregular laboratory smalls*

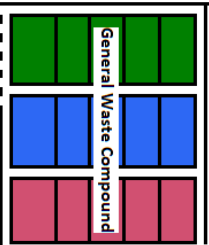
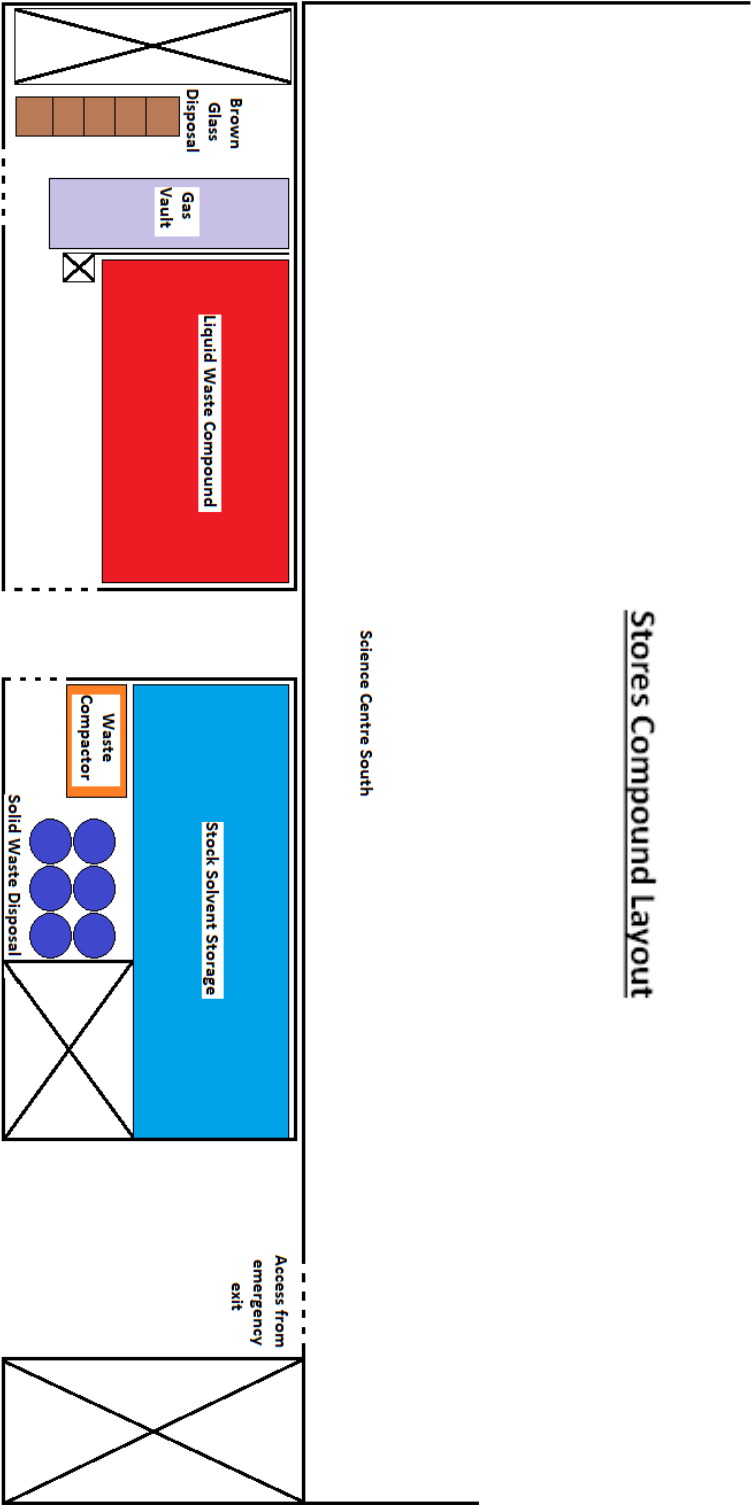
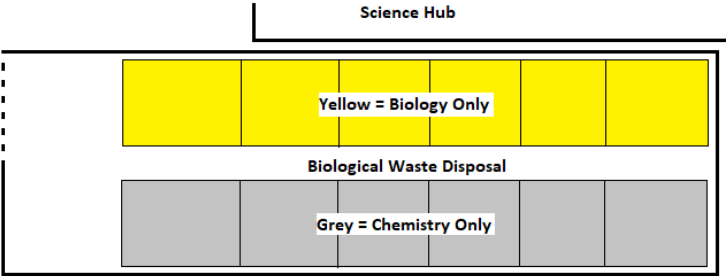
Waste that falls into none of the above categories and carries no specific SOP should be treated as irregular waste. A copy of the [irregular laboratory smalls waste form](#) should be filled in and brought to the School Hazardous Waste Coordinator (ext. 2301), who will provide appropriate labelling and packaging following consultation with SRCL. Once the material has been packaged and labelled, a time can be arranged for disposal. This procedure also applies to the disposal of genetically modified material.

All waste should be transported to Stores on a trolley using the service elevators in Science South. Lifts containing waste material must be locked with a lift key. **Under no circumstances** should people travel in lifts containing waste material. No stacking of chemicals or waste material of any kind is permitted, regardless of hazard category.

Trolleys must be fit for purpose, with all surfaces fully intact and a lip around the edge to prevent materials sliding off. Wire-frame trolleys must be checked to make sure there are no sharp edges which might puncture waste containers.

Following on from renovation works, Stores can only be accessed using corridor S0.93. Given that this corridor contains offices and is considerably narrower, it is very important that the designated opening hours are respected. Staff/researchers should not attempt to collect materials from Stores or dispose of waste during undergraduate-only hours.

Waste must be brought outside via the emergency exit at the end of the corridor **only after the alarm has been turned off by Stores staff!**



## 12.0 Correct Laboratory Etiquette

All laboratories in the School of Chemistry are shared work spaces. All staff, students, researchers and visitors should therefore respect the [School policy on laboratory etiquette](#) to maintain a safe working environment for themselves and their co-workers.

- Lab coats (available from Chemistry Stores) must be worn by researchers at all times while in laboratories.
- Respect each other's projects/property/laboratory space as you would expect others to respect yours. Never use equipment/apparatus belonging to another researcher without asking permission.
- Maintain a professional environment, use professional techniques and have a professional attitude towards others at all times.
- Provide collegial support for colleagues and share knowledge and understanding.
- Keep distracting noise to a minimum.
- Take responsibility for the facility and your colleagues. The lab is our asset and we must all take the responsibility to maintain it, and the safety of our colleagues.
- If you observe inappropriate behaviour, take responsibility and provide leadership in correcting it. Or, if appropriate, report irresponsible behaviour to your Supervisor, the Chief Technical Officer or the School Safety Advisor.

The following laboratory rules are aimed at both ensuring the safety of, and as a general courtesy to, all researchers in the School of Chemistry.

- Your lab space must be kept clean and well-organised at all times.
- Eating and drinking are forbidden in all laboratory areas; this includes write-up areas located within laboratories.
- Personal audio equipment (e.g. mp3/iPod) is forbidden in all laboratory write-up areas. These devices may hinder your ability to react fast and efficiently if a co-worker has an accident and needs your help. They may also hinder your ability to react to various laboratory incidents (alarms, etc.). Earphones/headphones are only permitted for ear protection or attending online meetings.
- Mobile phones may not be used in the laboratory areas. They can be used in the write-up areas, but please keep ring-tones at a low volume.
- [Personal protective equipment \(PPE\)](#) – due to the dangers presented by chemicals in use in the School laboratories, all researchers and visitors to the School must wear appropriate clothing and PPE at all times.

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- Lab coats must be worn by researchers at all times while in laboratories. Wearing of lab coats outside the laboratories should be kept to an absolute minimum and should only be done so when absolutely necessary (e.g. when transporting chemicals, etc.).
- Wearing of lab coats in write-up areas should be limited; lab coats must never be worn while you are seated in the write-up chairs.
- Safety glasses must be worn by researchers at all times while in laboratories. Over glasses or prescription safety glasses (available through application if necessary – contact [raymond.smith@ucd.ie](mailto:raymond.smith@ucd.ie)) must be worn by researchers who require prescription lenses. Normal glasses are not sufficient.
- It is forbidden to wear laboratory gloves outside of laboratory areas/on door handles/in write-up areas/in kitchen areas/on computer keyboards/on phone handsets. As chemicals/waste must be transported using trolleys/secondary containers, there is no need to wear gloves when transporting materials. A pair should be brought along to wear only while handling waste or in case of a spill.
- In addition to a lab coat, clothing must be worn such that it protects the wearer. Shorts and skirts are not permitted in laboratories.
- Footwear must cover the entire foot and have soles which protect the wearer from broken glass and other sharps. As such, flip-flops and sandals are not permitted in laboratories.
- Running is not permitted in the laboratory areas.
- Space is limited. Have only what you need in your work space. Coats, bags and other possessions should be placed where they cannot interfere with productivity.
- Only those who have a legitimate reason to be in the laboratory should be there. Guests should always be provided with the necessary PPE (safety glasses and a lab coat at the very least) and should be accompanied at all times.

### **13.0 Storage of Chemicals**

All people using chemicals are responsible for making sure they are stored appropriately. A brief list of requirements is given below, but a more comprehensive discussion on this can be found on pages 34-37 of the UCD [Chemical Safety Manual](#).

- Chemical bottles should be capped when not in use. Wrapping the caps/bottle necks in parafilm is also recommended to prevent build-up of residue around caps.

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- Chemicals on benches must be kept at a safe distance from the edge to minimise any chance of accidental spillage. Storage above chemicals above eye level is strongly discouraged.
- Compatibility of chemicals should be checked before storage so that incompatible materials can be stored separately.
- Overcrowding of cabinets should be avoided whenever possible, and bottles should never be stored on their sides.
- Safety data sheets for all compounds stored in the lab should be on file.
- Chemicals must not be stored on the floor.
- Empty containers must not be allowed to build up, and should be washed and disposed of appropriately as soon as possible.
- Acid and base baths must be properly banded.

Researchers and staff are also advised that, in order to avoid the build-up of legacy chemicals, materials should ideally be purchased only in the required amounts or in slight excess where required. Inventory audits every 1-2 years are strongly recommended to help make sure that chemicals don't accumulate. Such processes should be made considerably easier by use of the Quartz inventory management system. The disposal of old/excess materials is the managerial/financial responsibility of the PI/research group and not the School.

#### 14.0 Handling of Cryogenic Liquids

Liquid nitrogen is one of the most commonly used chemicals in the department. As such, all personnel should at the very least be aware of the hazards associated with cryogenic liquids. All persons intending to use liquid nitrogen should consult the [UCD Guide to the Safe use of Liquid Nitrogen](#), available from the UCD Chemistry website. SOPs are also provided for the [filling](#) and [transport](#) of 25L belly dewars.

Liquid helium is used for highly specialised equipment, and should only be handled by trained personnel.

Under no circumstances should people travel in a lift with any quantity of cryogenic liquids or solids. As with the transport of hazardous waste, dewars containing such materials should be locked in using a lift key.

The dispensing room can only be accessed via the exterior door between the waste compounds. Users must first meet Stores personnel, who will turn off the alarm for the emergency exit, before the dewar can be taken outside to access the exterior door. **The emergency exit should not be used until the alarm has been deactivated.**



### 15.0 Handling of Compressed Gases

The use of compressed gases is commonplace in the School. Compression presents its own inherent risks aside from those associated with the chemical properties of the gases themselves. Users are expected to be aware of these risks and the proper procedures and safety protocol associated with their use. These should factor into the risk assessment for the process (see section 17.0). Please note that while the below points must always be kept in mind when using gas cylinders, they are **not** a substitute for gas safety training. It is recommended that anyone using compressed gases for the first time should seek training at the earliest opportunity, and carry out any work prior to that under the direct supervision of a trained member of their group.

#### 1. Preparation, setup and clean-up.

- Check your gas panel to make sure O<sub>2</sub> depletion sensors are working correctly before commencing work. Do not ignore gas alarms if activated. Close the cylinder valve and follow the gas alarm response procedure as laid out in **Section 6.3**.
  - Be aware that while the sensors detect the levels of O<sub>2</sub> in the local atmosphere, many gases such as CO<sub>2</sub> can have toxic effects long before the activation threshold is reached – again, awareness of gas properties.
- Minimise any potential spark/fire hazards.
- Check the valve to make sure it is operational and clean.
- Cylinder must be secured with a full-circumference clamp (2 if necessary, depending on cylinder height and clamp size) whether in use or in storage, and should be in full view of the user during operation if possible.
- Regardless of how inert a gas may be, never use it as a substitute for compressed air. This applies not just to the use of cylinders, but also to the nitrogen taps in fumehoods. Such practice is wasteful and potentially hazardous.

#### 2. Storage

- Cylinders should be stored upright and well-secured in the designated gas presses. These presses should not be used for the storage of any other equipment.
- Group according to hazard category, making sure that incompatible gases are kept as far apart as possible. Empty cylinders should be segregated, and returned to the supplier as soon as possible.
- Gas valves should be fully closed when not in use.
- Cryogenics should be stored in a well-ventilated area away from drains, ducts and paths to low-lying areas.

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- Liquefied petroleum gases should be stored in open air, out of direct sunlight and not within 3 m of any compressed gases.
3. Transport
- Cylinders must be treated with care. Never drop or subject them to impact. Damaged or faulty cylinders should be returned to the supplier ASAP and the problem reported. Never move or use a damaged cylinder. Never disguise or attempt to repair damage to a cylinder.
  - Make sure to use the correct trolley for the size of the cylinder. Always check that it is fully secured with all valves closed before transport. Never roll a cylinder.
  - Never transport a cylinder with a hose and regulator attached.
  - Empty cylinders should be returned to the supplier with the valve in the closed position and the security cap in place.
4. General Safety
- Never use an unlabelled cylinder.
  - Never interfere with a cylinder's appearance, identification or screw threads.
  - Never dispose of cylinders for which you are not responsible.
  - Check pressure regulators before use, and replace every 5 years. Do not attempt to repair or modify.
  - Never tamper with the cylinder valve or remove the valve guard.
  - Never use PTFE tape to line cylinder valves – this contains oil that can react violently with compressed gases.

**16.0 Procedure for Unattended Experiments**

[Only reactions which are considered completely safe may be left unattended.](#)

- All heating apparatus must be equipped with a temperature controller.
- All glass joints must be secure.
- Tubing on reflux condensers must be secure and a water safety cut-out switch must be used.
- Vacuum and compressed gases must be set up safely and securely.

An unattended experiment form (see **Appendix 18.5**) and a suitable risk assessment must be filled out for each unattended experiment. Copies must be displayed on the fumehood cupboard sash and in the entrance to the lab space. Lights in active fumehoods should be left on to help with identification.

The following information must be available (in addition to the details of the experiment):

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- Name of the person responsible.
- Name of the supervisor responsible.
- A contact number for the person responsible.
- The time and date the experiment will conclude.
- Emergency action which should be taken by persons with no knowledge of the particulars of the experiment (e.g. service personnel or emergency services).

Once the experiment has concluded the unattended experiment forms or risk assessments must be removed from their displays.

Nitrogen atmosphere should only be used where necessary. Excessive use may lead to depletion of the weekly nitrogen supply and cause shortages of nitrogen later in the week, leading to usage restrictions. This applies to everyday use (e.g. monitor flow rate with Dreschel bottles if possible; take care to use compressed air, not nitrogen, to dry glassware) as well as overnight experiments.

## 17.0 Risk Assessments

### 17.1 Risk Assessment Methodology

It is the aim of *University College Dublin* to identify hazards in the workplace and to control the risks from those hazards in so far as is reasonably practicable. 'Hazard' is defined as the potential to cause harm, while 'risk' is defined as the potential of the hazard to cause harm under the actual circumstances of use. The assessment of risk from the hazards identified is based on the linkage of the probability of occurrence with the severity of injury or material loss (the hazard effect) resultant from that occurrence.

Probability is determined based on an assessment on how likely it is that an adverse event related to the hazard concerned will occur. Probabilities are graded as:

- *Unlikely*: the adverse event being considered will occur only rarely.
- *Likely*: the adverse event being considered will occur on a frequent basis
- *Very Likely*: the adverse event being considered is almost certain to occur

Severity is based on the degree of personal injury or damage to property likely to occur in the event that the adverse event occurs. Severity of outcome is graded as:

- *Slightly Harmful*: e.g. superficial injuries; minor cuts and bruises; nuisance and irritation; temporary discomfort; minor infection; minor material damage.
- *Harmful*: e.g. lacerations; burns; concussion; sprains; minor fractures; dermatitis (temporary); asthma (temporary); long term discomfort; infection requiring medical treatment; significant material damage.

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- *Very Harmful*: e.g. fatality; amputation; major fracture; severe poisoning; cancer; life shortening condition / disease; deafness; head injuries; eye injuries; substantial material damage.

The risk assessment matrix below is used to calculate the risk posed by any hazard by linking the probability of an adverse occurrence with the severity of injury or material loss (the hazard effect) resultant from that occurrence.

Table 1. Risk Assessment Matrix

Probability Of Negative Event	Severity Of Outcome Of Negative Event		
	Slightly Harmful	Harmful	Very Harmful
Unlikely	<i>trivial risk</i>	<i>acceptable risk</i>	<i>moderate risk</i>
Likely	<i>acceptable risk</i>	<i>moderate risk</i>	<i>substantial risk</i>
Very Likely	<i>moderate risk</i>	<i>substantial risk</i>	<i>intolerable risk</i>

- *Trivial Risk*: No further action required.
- *Acceptable Risk*: No additional risk control / reduction measures required
- *Moderate Risk*: Further risk control / reduction measures should be considered and implemented where possible. Hazards graded as *Moderate Risk* must be closely managed.
- *Substantial Risk*: Further risk control / reduction measures must be identified. If the risk cannot be reduced further then the hazard must be strictly managed and the frequency and duration of the hazard must be reduced to as low a level as practicable along with the number of persons exposed to the hazard.
- *Intolerable Risk*: All work involving this hazard is prohibited.

The aim of any risk control / reduction measures identified and implemented are to reduce the residual risk from the hazard to as low a level as is reasonably practicable.

Where practicable *University College Dublin* commits itself to the elimination of hazards. Where the risk from a hazard cannot be eliminated at source then the University will supply a range of suitable personal protective equipment in order to protect employees where necessary.

Risk assessments will be reviewed regularly and when changes in work practises arise within the University or when new activities are introduced. All staff and postgraduate students must be familiar with the contents of the risk assessments that are relevant to their work. Training and further information on workplace safety and risk assessment is available from the *University SIRC Office* ([safety@ucd.ie](mailto:safety@ucd.ie)).

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Staff and postgraduates working within the *School of Chemistry* must review all relevant available risk assessments (see register of risks below) prior to initiating work or undertaking new tasks to establish whether or not these documents identify and manage the hazards associated with their work adequately. In the event that existing risk assessments do not adequately manage the hazards associated with their work employees and postgraduates should either modify these existing risk assessments or complete their own risk assessments as necessary. Standard risk assessment templates are appended to this document to aid in this process. Assistance and advice in this regard can be obtained from the *School Safety Committee* or the *SIRC Office*.

In addition to risk assessments, research groups are required to keep a full list of up-to-date SDS sheets for all chemicals used and stored in the lab. These should be updated regularly to reflect any changes by the manufacturer. As these provide the lists of hazards for chemical risk assessments, these should also be updated in line with the corresponding SDS sheets.

While the primary focus of the risk assessment tends to be the chemical hazards involved, physical hazards such as sharps, hot surfaces, pressurised containers, etc., must also be accounted for.

Similarly, SOPs for equipment and common lab procedures should be on hand to review when necessary, with amendments made in line with changes to available safety information. A number of chemical and equipment SOPs are provided on the School of Chemistry website for download and general use.

- [School of Chemistry SOP for Transporting 25L Liquid Nitrogen Belly Dewars](#)
- [School of Chemistry SOP for Filling 25L Liquid Nitrogen Belly Dewars](#)
- [School of Chemistry SOP for Operation of Grubbs-Type Dry Solvent Stills](#)
- [School of Chemistry SOP for Handling Azides And Other Potentially Explosive Materials](#)
- [School of Chemistry SOP for Hydrogen Gas Detection in Science South \(CSCB\)](#)
- [School of Chemistry SOP for Malodorous Chemicals](#)
- [School of Chemistry SOP for Operation of Glove Boxes](#)
- [School of Chemistry SOP for Operation of Vacuum Pumps And Evacuated Apparatus](#)
- [School of Chemistry Guide to Fume Hood Operation in Science South \(CSCB & A1\)](#)

Any SDS sheets, completed risk assessments or SOPs, printed or electronic, should be disseminated among all researchers in the group or located somewhere in the lab where it is easily accessible to all users.

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An [Office Safety Handbook](#) which outlines the risk associated with working in an office environment is available for review by persons who work in said environment.

For those persons who as part of their duties have to meet members of the public face to face or engage in 'home visits' a set of [Safety Guidelines](#) has been developed which should be consulted by same. Persons required to complete risk assessments for chemical and biological hazards are strongly encouraged to consult the [University College Dublin Biosafety Manual](#) and the [Chemical Safety Manual](#) for more detailed safety information.

### 17.2 School of Chemistry Register of Risks

The following risk assessments are deemed to be relevant to the operations of the *School of Chemistry*. The most current versions of these risk assessments are available on the [SIRC Office Website](#).

Persons working within the school must make themselves familiar with the contents of all risk assessments which are relevant to their assigned duties and work in accordance with the provisions contained therein.

Users must be strongly aware that the documents below are intended as an aid, and are not to be used as an alternative to carrying out your own risk assessments. Researchers should always produce their own risk assessments in line with the specific activities they are undertaking. Users can keep local copies of the below documents, but they must be reviewed, signed, and dated by the user/PI to state that they adequately address the risks associated with the process. If not, they can modified/updated accordingly before being signed and dated.

<p style="text-align: center;"><u><a href="#">General Risk Assessments</a></u></p> <p style="text-align: center;"><i>These risk assessments are intended as resources only.</i></p> <p style="text-align: center;"><i>They are not a substitute for writing your own assessments.</i></p>			
Risk Assessment Number	Title	Risk Rating	Comment
UCDA1	<a href="#">Manual Handling (General)</a>	Acceptable	
UCDA2	<a href="#">Access and Egress</a>	Acceptable	
UCDA3	<a href="#">Bullying and Harassment</a>	Moderate	
UCDA4	<a href="#">Workplace Housekeeping</a>	Acceptable	
UCDA5	<a href="#">Pregnant Employees (General)</a>	n/a	Contact <a href="#">UCD SIRC Office</a> to arrange Risk Assessment
UCDA6	<a href="#">Home Working</a>	Trivial	

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UCDA7	<a href="#">Presence On A Third Party Site (General)</a>	Moderate	
UCDA8	<a href="#">Kitchen / Tea Making Areas</a>	Trivial	
UCDA9	<a href="#">Driving / Use Of Vehicles</a>	Substantial	
UCDA10	<a href="#">Foreign Travel</a>	Acceptable	
UCDA11	<a href="#">Lone Working (General)</a>	n/a	Risk rating to be decided on an individual basis
UCDA12	<a href="#">Workplace Stress</a>	Moderate	
UCDA13	<a href="#">Use Of Passenger / Goods Lifts</a>	Trivial	
UCDA14	<a href="#">Noise (General)</a>	Acceptable	
UCDA15	<a href="#">Use Of Personal Protective Equipment (General)</a>	Trivial	
UCDA16	<a href="#">Travel Within Ireland</a>	Acceptable	
UCDA17	<a href="#">Violence And Aggression(General)</a>	Acceptable	
UCDA18	<a href="#">Fire (General)</a>	Moderate	
UCDA19	<a href="#">Electricity (General)</a>	Moderate	

#### Office Risk Assessments

*These risk assessments are intended as resources only.  
They are not a substitute for writing your own assessments.*

<b>Risk Assessment Number</b>	<b>Title</b>	<b>Risk Rating</b>	<b>Comment</b>
UCDB1	<a href="#">Office Safety (General)</a>	Acceptable	
UCDB2	<a href="#">Use Of Display Screen Equipment</a>	Acceptable	Contact SIRC Office to arrange individual assessment
UCDB3	<a href="#">Electricity In The Office</a>	Acceptable	
UCDB4	<a href="#">Fire In The Office</a>	Acceptable	
UCDB5	<a href="#">Manual Handling In The Office</a>	Acceptable	

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<p style="text-align: center;"><u><a href="#">Chemical Agents Risk Assessments</a></u></p> <p style="text-align: center;"><i>These risk assessments are intended as resources only. They are not a substitute for writing your own assessments.</i></p>			
Risk Assessment Number	Title	Risk Rating	Comment
UCDC1	<a href="#">Handling And Use Of Chemical Agents (General)</a>	Moderate	For general guidance purposes only. Reference should be made to the more specific risk assessments for chemical agents. In the event that no risk assessment is available for a chemical agent then the user must arrange for one to be completed prior to using the agent for the first time.
UCDC2	<a href="#">Storage Of Chemical Agents (General)</a>	Moderate	The large scale storage of chemical agents (i.e. 00's of litres / kgs may require the completion of a more specific risk assessment).
UCDC3	<a href="#">Handling And Use Of Flammable Liquids / Organic Solvents (General)</a>	Acceptable	
UCDC4	<a href="#">Cryogenic Liquids (General)</a>	Acceptable	
UCDC5	<a href="#">Use Of Compressed Gases (General)</a>	Acceptable	
UCDC6	<a href="#">Use and Handling Of Corrosive Chemicals (General)</a>	Acceptable	
UCDC7	<a href="#">Use and Handling Of Hydrofluoric Acid (General)</a>	Moderate	
UCDC8	<a href="#">Use and Handling Of Cyanide Compounds (General)</a>	Moderate	
UCDC9	<a href="#">Use and Handling Of Mercury And Mercuric Compounds (General)</a>	Acceptable	
UCDC10	<a href="#">Use and Handling Of Organic Peroxide Compounds (General)</a>	Acceptable	
UCDC11	<a href="#">Use and Handling Of Potentially Explosive Materials (General)</a>	Acceptable	
UCDC12	<a href="#">Use and Handling Of Laboratory Diagnostic Kits (General)</a>	Acceptable	
UCDC13	<a href="#">Use and Handling Of Carcinogens and Mutagens (General)</a>	Moderate	For general guidance purposes only. A specific risk assessment for every



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			carcinogen and mutagen in use must be completed prior to using the agent for the first time.
UCDC15	<a href="#">Use and Handling Of Irritants, Harmful Agents and Sensitisers (General)</a>	Acceptable	
UCDC16	<a href="#">Use and Handling Of Toxic Agents (General)</a>	Acceptable	
UCDC17	<a href="#">Use and Handling Of Dry Ice (General)</a>	Acceptable	
UCDC18	<a href="#">Dealing with Chemical Spillages (General)</a>	Moderate	

**Biological Agents Risk Assessments**

*These risk assessments are intended as resources only.  
They are not a substitute for writing your own assessments.*

Risk Assessment Number	Title	Risk Rating	Comment
UCDD1	<a href="#">Handling and Use Of Class 1 Biological Agents</a>	Trivial	
UCDD2	<a href="#">Handling and Use Of Class 2 Biological Agents</a>	Acceptable	
UCDD3	<a href="#">Use and Propagation Of Cell Lines (General)</a>	Acceptable	
UCDD4	<a href="#">Handling and Use Of Biological Material Of Human / Animal Origin</a>	Acceptable	
UCDD5	<a href="#">Diagnostic Laboratories (General)</a>	Acceptable	
UCDD6	<a href="#">Handling and Use of Class 3 Biological Agents (General)</a>	Substantial	
UCDD7	<a href="#">Centrifugation Of Biological Samples (General)</a>	Acceptable	
UCDD8	<a href="#">Dealing With Biological Agent Spillages (General)</a>	Acceptable	
UCDD9	<a href="#">Zoonoses (General)</a>	Moderate	
UCDD10	<a href="#">Use and Propagation of Cancer Cell Lines (General)</a>	Moderate	
UCDD11	<a href="#">Use of Mobile Devices in Microbiological Laboratories</a>	Moderate	

**General Laboratory Risk Assessments**

*These risk assessments are intended as resources only.  
They are not a substitute for writing your own assessments.*

Risk Assessment Number	Title	Risk Rating	Comment
UCDE1	<a href="#">Use of Centrifuges (General)</a>	Acceptable	
UCDE2	<a href="#">Use Of Autoclaves (General)</a>	Acceptable	
UCDE3	<a href="#">Use Of Bunsen / Gas Burners (General)</a>	Acceptable	
UCDE4	<a href="#">Cold Rooms / Walk In Freezers (General)</a>	Acceptable	

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UCDE5	<a href="#">Use Of Fridges / Freezers (General)</a>	Trivial	
UCDE6	<a href="#">Use of Laboratory Glassware (General)</a>	Acceptable	
UCDE7	<a href="#">Use Of Ovens (General)</a>	Acceptable	
UCDE8	<a href="#">Use Of Microwave Ovens (General)</a>	Acceptable	
UCDE9	<a href="#">Use Of Sharps (General)</a>	Acceptable	
UCDE10	<a href="#">Use Of Homogenisers (General)</a>	Acceptable	
UCDE11	<a href="#">Use Of Hot Plates / Stirrers (General)</a>	Acceptable	
UCDE12	<a href="#">Use Of pH Meters (General)</a>	Trivial	
UCDE13	<a href="#">User Of Rotary Evaporators (General)</a>	Acceptable	
UCDE14	<a href="#">Use Of UV Light Sources</a>	Acceptable	
UCDE15	<a href="#">Gel Electrophoresis - Non Chemical Risks (General)</a>	Acceptable	
UCDE16	<a href="#">Use Of Laboratory Personal Protective Equipment</a>	Trivial	
UCDE17	<a href="#">Use Of Microtomes (General)</a>	Acceptable	
UCDE18	<a href="#">Use Of Laboratory Pumps (General)</a>	Acceptable	
UCDE19	<a href="#">Electricity in the Lab</a>	Moderate	
UCDE20	<a href="#">Fire Safety in the Lab</a>	Moderate	
UCDE21	<a href="#">Manual Handling In The Lab</a>	Acceptable	
UCDE22	<a href="#">Handling and Disposal of Lab Wastes</a>	Acceptable	
UCDE23	<a href="#">Laboratory Personal Hygiene</a>	Acceptable	
UCDE24	<a href="#">Use Of Water/Oil Baths (General)</a>	Acceptable	
UCDE25	<a href="#">Use Of Hot Air Guns (General)</a>	Acceptable	
UCDE26	<a href="#">Use Of Wax Baths (General)</a>	Acceptable	
UCDE27	<a href="#">Use Of Ice Makers (General)</a>	Trivial	
UCDE28	<a href="#">Dissection (General)</a>	Acceptable	
UCDE29	<a href="#">Use Of Hand Sanitizers / Soaps (General)</a>	Acceptable	
UCDE30	<a href="#">Handling And Use Of Disinfectants (General)</a>	Acceptable	
UCDE31	<a href="#">Use of Lasers (General)</a>	Acceptable	
UCDE32	<a href="#">Use Of Laboratory Analytical Equipment (General)</a>	Acceptable	
UCDE33	<a href="#">NMR (General)</a>	Moderate	

#### **Radioactive Hazard Safety Assessments**

*These risk assessments are intended as resources only.  
They are not a substitute for writing your own assessments.*

<b>Risk Assessment Number</b>	<b>Title</b>	<b>Risk Rating</b>	<b>Comment</b>
UCDG1	<a href="#">Handling And Use Of Radioisotopes (General)</a>	Moderate	
UCDG2	<a href="#">Use of X-ray Equipment (General)</a>	Moderate	

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**Engineering and Workshop Risk Assessments***These risk assessments are intended as resources only.**They are not a substitute for writing your own assessments.*

<b>Risk Assessment Number</b>	<b>Title</b>	<b>Risk Rating</b>	<b>Comment</b>
UCDK1	<a href="#"><u>Use of Abrasive Wheels (General)</u></a>	Acceptable	
UCDK2	<a href="#"><u>Use of Band Saws (General)</u></a>	Acceptable	
UCDK3	<a href="#"><u>Use of Lasers (General)</u></a>	Acceptable	
UCDK4	<a href="#"><u>Use of Lathes (General)</u></a>	Acceptable	
UCDK5	<a href="#"><u>Use of Milling Machines (General)</u></a>	Acceptable	
UCDK6	<a href="#"><u>Use of Table Saws (General)</u></a>	Acceptable	
UCDK7	<a href="#"><u>Use of Bench Furnaces (General)</u></a>	Acceptable	
UCDK8	<a href="#"><u>Use of Shot Blast Cabinets (General)</u></a>	Acceptable	
UCDK9	<a href="#"><u>Use of Workshop Guillotines (General)</u></a>	Acceptable	
UCDK10	<a href="#"><u>Soldering (General)</u></a>	Acceptable	
UCDK11	<a href="#"><u>Use of Compressors (General)</u></a>	Acceptable	
UCDK12	<a href="#"><u>Use of Petrol - Diesel Fuel (General)</u></a>	Acceptable	
UCDK13	<a href="#"><u>Use of Compressed Air (General)</u></a>	Acceptable	
UCDK14	<a href="#"><u>Use of Handheld Portable Electrical Tools (General)</u></a>	Acceptable	
UCDK15	<a href="#"><u>Use of Handheld Tools (General)</u></a>	Acceptable	
UCDK16	<a href="#"><u>Use of Pallet Trucks (General)</u></a>	Acceptable	
UCDK17	<a href="#"><u>Use of Ladders (General)</u></a>	Acceptable	
UCDK18	<a href="#"><u>Use and Handling of Hydraulic Oil - Workshop Lubricants</u></a>	Trivial	
UCDK19	<a href="#"><u>Dust (General)</u></a>	Acceptable	
UCDK20	<a href="#"><u>Vibration (General)</u></a>	Acceptable	
UCDK21	<a href="#"><u>General Plant and Equipment</u></a>	Acceptable	
UCDK22	<a href="#"><u>Welding (General)</u></a>	Acceptable	

## 18.0 Appendices

### 18.1 Appendix 1: Links to UCD Risk Assessment Templates

- [Biological Agents Risk Assessment Template](#)
- [Chemical Agents Risk Assessment Template](#)
- [Machinery/Equipment Risk Assessment Template](#)
- [Lone Working Risk Assessment Template](#)
- [Home Working Risk Assessment Template](#)

### 18.2 Appendix 2: Links to UCD Guidance Documents and Manuals

- [Biological Safety Manual](#)
- [Chemical Safety Manual](#)
- [Homeworking Guide](#)
- [Office Safety Manual](#)
- [Travel Safety Guidelines](#)

### 18.3 Appendix 3: Links to UCD Checklists

- [Self Audit Checklist](#)
- [Laboratory Safety Checklists](#)

#### 18.4 Appendix 4: Science Complex Fire Safety Notice

## SCIENCE COMPLEX FIRE SAFETY NOTICE

### IF YOU HEAR THE FIRE ALARM

1. Do not panic, but prepare to leave the building.
2. The alarm will sound continuously; leave the building immediately in an orderly fashion by following the green man running signs to the nearest exit. Please note that this may not be the same way that you entered the building.




3. Classes in session must be dismissed and students directed to leave.
4. Persons in laboratories and workshops should make the area safe before leaving by turning off equipment where possible and securing hazardous containers.
5. Do not use the lifts.
6. Do not go back to your working area for any reason.
7. If for any reason you are unable to leave the building make your way to a protected stairwell or a room with an external window and shut the door. If possible inform the emergency line (ext. 7999) or a colleague of your location and the reason you cannot safely exit the building.
8. Proceed to the nearest emergency assembly area to your point of departure from the building. The assembly areas for the Science Complex are:  
Car Park Beside Veterinary Science Centre      Beside the Lake (CSCB End)  
In Front of the Church      Pedestrian Area in Front of Computer Centre
9. Report any knowledge you may have of missing or injured persons to a *Fire Marshal / Services Personnel*.
10. Return to the building only after the *Chief Fire Marshal / Services Personnel* has given the all clear signal.

### IF YOU OBSERVE A FIRE

1. Activate the fire alarm by breaking one of the red wall mounted break glass units located throughout the building and if possible inform the emergency line (ext. 7999).
2. If it is safe to do so and you have been trained to do so the fire may be tackled using a suitable fire extinguisher, but only if this does not place any person at risk of injury and you have a safe and clear means of escape from the fire at all times.
3. In the event that you cannot fight the fire or the fire begins to get out of control evacuate the area immediately.

## Appendix 18.5: Unattended Experiment Form

<h2 style="margin: 0;">School of Chemistry</h2> <h1 style="margin: 0;">Unattended Experiment Form</h1>		
Lab:	Date:	Fume Cupboard No:
Name (of person responsible): <b>24 hour Contact No:</b> Signature:		
List solvents and all hazardous chemicals (Do not write formulae!!)		
Possible Hazards (circle): <div style="display: flex; justify-content: space-around; font-style: italic;"> <span>Fire</span> <span>Explosion</span> <span>Toxic Fumes</span> <span>Corrosion</span> </div> <div style="display: flex; justify-content: space-around; font-style: italic;"> <span>Avoid contact with skin</span> <span>other (specify)</span> </div>		
Apparatus:		
Services required (circle): <div style="display: flex; justify-content: space-around; font-style: italic;"> <span>Water</span> <span>electricity</span> <span>heat</span> <span>inert gas</span> </div> <div style="display: flex; justify-content: space-around; font-style: italic;"> <span>vacuum</span> <span>other (specify)</span> </div>		
Emergency action:		
Supervisor (or Alternative Supervisor):  Signature:		

- 2 copies required. Please place one on fume cupboard and the other in the box provided outside the lab-door.
- NB: Remove this form from the box when experiment is complete
- Leave light on in fume cupboard containing this experiment
- Please refer to School of Chemistry SOP for Unattended Experiments