


General Assessment of Hazards for Work in the Chemistry Department

This hazard assessment should be read by those performing and supervising work in conjunction with all relevant documentation, including the departmental policy, codes of practice and safe systems of work. This is not a risk assessment: the contribution of 'likelihood' to the level or risk will depend on the details of specific projects and the environment in which they are conducted.

Location(s):				All areas of the Chemistry (CG) and Materials Chemistry (MC) buildings			
Description of task or activity	Hazards <i>(things with the potential to cause harm)</i>	Those at risk <i>(people who could be harmed)</i>	How could they be harmed? <i>(nature of injuries, damage that could result)</i>	Uncontrolled hazard level <i>(level of risk without control)</i>	Required controls <i>(how the risk can be removed or reduced by for example engineered methods, safe systems of work, training and/ or personal protective equipment)</i>	Controlled hazard level <i>(level of risk when controls are in place)</i>	Relevant sections of policy
Overnight experiments and permanently running equipment	Fire, flood, failure of services	All personnel working out of hours	Burns, electric shock, slip, chemical exposure	Serious	Supervisor approval required for overnight experiments; condenser tubing checked for leaks and secured with cable tie; experiment stable for at least one hour before departure; temperature controllers on heating equipment; contact information in the event of service failure; record of running experiments and equipment.	Minor	Section E
Use of chemicals and synthetic chemistry	Chemical exposure	All personnel in laboratories, general circulation areas, Chemistry stores	Effects of chemical exposure	Moderate to Major	Wearing of suitable lab coats, safety spectacles (EN 166-F); hazardous chemicals (identified by prior COSHH assessment) manipulated in appropriate fume cupboards using appropriate PPE, including gloves (EN 374-3); good laboratory practice; codes of practice for transporting materials in the department; codes of practice for conduct in public areas, with appropriate signage; code of practice in the event of a power failure; codes of practice for highly hazardous materials with an uncontrolled risk level of 'Major'; code of practice for handling deliveries to stores; code of practice for external contractors.	Minor	Section B Section D Section I Section K Section L
	Chemical incompatibility	All personnel in laboratory and surroundings	Explosion, toxic or harmful byproducts	Moderate to Major	Check for chemical incompatibilities during COSHH assessment prior to work; identify appropriate waste disposal procedures.	Minor	Section K
	Chemical spillage	All personnel in laboratories, circulation areas, Chem. stores	Effects of chemical exposure	Moderate to Major	Consideration of spillage during COSHH assessment prior to work; availability of spill kits; emergency response protocol for hazardous material spillage, including use of breathing apparatus; good laboratory practice; codes of practice for transporting materials in the department; codes of practice for conduct in public areas, with appropriate signage.	Minor	Section B Section D
	Fire	All laboratory personnel	Burns, explosion and debris	Moderate to Major	Fire extinguisher training for all staff and postgraduate students, plus undergraduates conducting lab projects; emergency evacuation plan; practice evacuations.	Minor	Section B
	Use of glassware	All laboratory personnel	Cuts, chemical contamination if wounded	Moderate	Good laboratory practice; policy for the disposal of waste glassware, including dedicated waste disposal bins; availability of trained first aiders.	Minor	Section K
	Use of sharps	All laboratory personnel	Needlestick injuries	Moderate	Good laboratory practice; no re-sheathing of sharps; code of practice for disposal in sharps containers; availability of trained first aiders.	Minor	Section K
	Use of hotplates and heating equipment	All laboratory personnel	Burns, fire	Moderate	Good laboratory practice; flammable substances kept away from sources of ignition; condenser tubing checked for leaks and fit; use of temperature controls; availability of trained first aiders.	Minor	Section K
	Use of cryogenics	All laboratory personnel	Asphyxiation, burns, explosion	Moderate to Major	Use in well ventilated areas; no use in confined areas; use of appropriate PPE; no use of liquid nitrogen mixed with flammable solvents; no systems cooled by liquid nitrogen left open to the air; gradual addition of solid carbon dioxide to cold fingers.	Minor	Section K

	Use of vacuum equipment and Schlenk lines	All laboratory personnel	Implosion, chemical exposure, others as for cryogen use	Moderate or Serious	Use of appropriate PPE and local ventilation; inspection of vacuum lines before use; no use of damaged, scratched or cracked glassware; use of covered glassware to minimise the likelihood of generating high velocity glass fragments; COSHH assessments for materials under vacuum.	Minor	Section K
	Use of rotary evaporators	All laboratory personnel	Use of vacuum equipment and cryogenes (see above); rotating equipment, explosion	Moderate or Serious	As for 'Use of vacuum equipment' and 'Use of cryogenes'; no manipulation of rotating glassware; peroxide testing of ether-based solvents.	Minor	Section K
	Use of UV lamps	All laboratory personnel	Eye or genetic damage	Moderate	Use in conjunction with a cabinet fitted with a suitable UV-filter	Minor	Section K
	Spectroscopy services (NMR, MS)	All using the facility	Chemical exposure, glass cuts	Moderate	COSHH assessment of chemicals; care when handling glass tubes and vials; disposal of broken tubes and used vials in glass bins after cleaning	Minor	Section K
Laser work	Exposure to non-ionising radiation	All laboratory personnel	Eye damage, burns	Moderate or Serious	Approved codes of practice; use of interlocks; use of appropriate PPE.	Minor	Section L
Radioisotope and X-ray work	Exposure to ionising radiation	All laboratory personnel	Genetic damage	Moderate or Serious	Work only conducted in approved areas; user training; exposure monitoring; safety mechanisms including beam shutters, warning lights and interlocks on x-ray equipment.	Minor	Section L
Biological work	Cell culture	All laboratory personnel	Disease or infection	Moderate or Serious	Work conducted in approved areas with appropriate level of containment; provision of training to researchers culturing microbes.	Minor	Section L
	Exposure to GMOs	All laboratory personnel	Disease or infection, environmental release	Moderate or Serious	Work conducted in approved controlled areas; provision of training to researchers manipulating GMOs.	Minor	Section L
	Flame sterilisation	All laboratory personnel	Burns, fire, aerosols	Moderate	Use in designated area of the laboratory with no flammable materials in the vicinity; turn off when not in use; fire extinguisher training.	Minor	Section K
	Use of cold room	All laboratory personnel	Asphyxiation, spore inhalation	Moderate or Serious	No cryogenic liquids or solid carbon dioxide to be taken into the cold room; no storage of paper or cardboard in the cold room.	Minor	Section K
	Autoclaving	All laboratory personnel	Release of stored energy	Moderate	Instrument failsafe mechanisms; code of practice; user training; regular inspection.	Minor	Section K
	Gel electrophoresis	All laboratory personnel	Effects of chemical exposure	Moderate or Serious	Wearing of suitable lab coats, safety spectacles (EN 166-F); hazardous chemicals (identified by prior COSHH assessment) manipulated in fume cupboards using appropriate PPE; good laboratory practice.	Minor	Section K
	Use of UV transilluminator	All laboratory personnel	UV exposure, genetic damage	Moderate or Serious	Instrument failsafe mechanisms and guards; code of practice; user training; regular inspection.	Minor	Section K

Assessment prepared by			Review date
Name:	Chemistry Department Safety Committee		14 September 2019
Signature:	 (DSC, committee chair)		
Date:	14 September 2018		