UNIVERSITY OF BATH HEALTH AND SAFETY STANDARD

Laboratory Safety

Version Number	Version 4	Date of Approval	May 2026	Review Date	Three years from acceptance by UHSC
Author and Lead	Debbie Robarts; Scientific Safety Advisor				
Aims	The University is committed to ensuring the health, safety and welfare of all staff, students and visitors. To achieve this the University aims to take effect measures to control exposure to hazardous substances and protect the health of its employees.				
Scope	The requirements of this standard apply to all employees of the University of Bath while undertaking work activities within campus laboratories. This will include academic, technical and research staff. This standard only covers the general hazards and control measures required when working within laboratories. Guidance regarding specific hazards associated with hazardous substances can be found within other SHEW documentation.				
Relevant Legislation	• Health & Safety at Work etc. Act 1974 (HASWA) • The Management of Health & Safety at Work Regulations 1999 (MHSWR) • Control of Substances Hazardous to Health Regulations 2002 (COSHH) • The Personal Protective Equipment Regulations (PPE) 1992 • The Health and Safety (Safety Signs and Signals) Regulations 1996				
Definitions	Laboratory A facility that provides controlled conditions in which scientific or technological research, experiments, and measurement may be performed.				
	Laboratory Worker Anyone who carries out an activity within a laboratory. As well as persons carrying out research etc. this includes maintenance work, cleaning and waste collection.				
Responsibility for implementation	Faculty Deans Heads of Departments Technical Managers Supervisors/Managers/Principal Investigators Lab Custodian/Supervisor				
Training availability:	Induction Training by Supervisors/Area Safety Co-ordinators Laboratory specific training by Custodians/Supervisors				

	Standard to meet:	**Accountability**	**Reference documents and more information**
	Information, Instruction and Training		
1.	• Identify appropriate laboratory safety rules, commensurate with work activities • Ensure rules are clearly communicated, e.g. in department handbook, posted in lab areas, and during induction. • Record that rules have been read and understood.	Head of Departments	

	Personal Hygiene Measures		
2.	As a minimum the following rules should be applied to all laboratories to prevent cross-contamination of potentially hazardous substances: • No eating, drinking or chewing gum in laboratories • No pipetting by mouth • Do not apply cosmetics, including lip balm • Do not handle contact lenses (unless in emergency) • Wash hands thoroughly prior to leaving laboratory • Long hair should be tied back • Loose clothing (e.g. sleeves) and dangling jewellery items should be avoided/covered • Do not wear open shoes (Flip flops, sandals, crocs) • Cover cuts and sores, e.g. with a plaster • Mobile phones should not be used • Where possible personal items such as coats/bags should not be taken into the laboratory (exception is when access required to office space)	Line Manager/ Supervisor/ Principal Investigator/Lab worker	HSE Guidance on effective hand washing: HSE Skin care - hand washing HSE Method for using hand cream, soap and cleanser
	Housekeeping standards		
3.	All lab workers are responsible for keeping their work area clean and orderly: • Only procure and use equipment/chemicals etc. that are needed for current work activity • Store unused equipment/chemicals appropriately and safely • Dispose of waste promptly and in correct waste containers – items should not be left littering benches/floor • Keep walkways/emergency exits clear – chemicals etc. should not be stored on the floor • Clean up spills promptly • Clean down work area when finished and leave in a safe state	Lab workers/ Supervisors/ Principal Investigators	
	PPE Requirements		
4.	• Ensure PPE requirements are identified within risk/COSHH Assessments • Provide PPE where identified to required standards (e.g. EN166 For safety glasses) • Ensure PPE requirements are communicated to lab workers and are understood	Line Manager/ Supervisor/ Principal Investigators	
5.	• Wear correct PPE when required • Store PPE appropriately when not in use • Keep reusable PPE clean • Do not wear potentially contaminated gloves, discard when removed • Replace PPE if damaged/faulty	Lab workers	

	Work Equipment		
6.	• Ensure work equipment is safe for use and maintained in a good condition • Ensure work equipment is in good working order and good repair • Is used according to operating / manufacturer's instructions	Head of Department/ Technical Staff/Lab Custodians and Supervisors	http://www.hse.gov.uk/electricity/faq-portable-appliance-testing.htm Safe-use-of-local-exhaust-ventilation
7.	• Check work equipment is safe for use and in a good condition prior to use, e.g. ensure electrical leads are not damaged • Only use electrical work equipment with in date PAT • Ensure electrical equipment is kept away from flammable materials and water • Know how to safely shutdown equipment in event of an emergency • Check glassware for any cracks, scratches and sharp edges prior to use. Discard if not fit for use.	Lab workers	
	Gas Safety Requirements		
8.	• The use of gas cylinders should be minimised within laboratories/buildings to control fire/asphyxiant risk – unused cylinders should be returned to external gas stores promptly • All gas cylinders should be individually secured and not left on trollies • Gas cylinder regulators should only be used with the gas for which it is designed and labelled. Once a regulator has been in service with a particular gas it shall remain in that gas service for the remainder of its life. • Gas cylinder regulators should be replaced every 5 years in accordance with BCGA Code of Practice 47 (CP47) • Oxygen monitors should be placed in labs where the potential for asphyxiation has been identified by risk assessment. They should be sited appropriately. • Users of Laboratory gases should be provided with suitable information, instruction and training in safe use of gases and movement of cylinders, including what to do in an emergency	Lab Custodian/ Supervisor	Compressed-gases-safety-code-of-practice cp44-the-storage-of-gas-cylinders-2022 cp47-the-safe-use-of-individual-portable-or-mobile-cylinder-gas-supply-equipment-revision-1-2018/
9.	• Users of Laboratory gases should use gas cylinders in accordance with their training • Users should be aware of what to do in the event of emergency, e.g. leak of gas, oxygen monitor sounds • Safety devices, such as oxygen monitors, must be tested periodically to ensure they are functioning correctly	Lab Custodians/ Supervisors/Lab workers	
	Handling Cryogenic Materials		
10.	• The use of liquid nitrogen/cardice within buildings should be minimised and in well-ventilated areas to prevent risk of asphyxiation	Lab Custodian/ Supervisor	cp30-the-safe-use-of-liquid-nitrogen-dewars-revision-3-2019

	• Dewar filling from bulk storage containers will be carried out by trained users only, wearing appropriate PPE • Users of cryogenic materials should be provided with suitable information, instruction and training in safe use and movement of Dewar's, including what to do in an emergency • Oxygen monitors should be placed in labs where the potential for asphyxiation has been identified by risk assessment. They should be sited appropriately. • Storage of cryogenic containers should be in well ventilated areas, freezers/cold rooms are not appropriate.		Safe-use-of-cryogenic-materials-safety-standard
11.	• Users of Cryogenic Materials should use them in accordance with their training: ○ Wear appropriate PPE ○ Use tongs to retrieve objects ○ Dispense slowly – avoid splashing/boiling ○ Use loose fitting lids – never seal ○ Only use containers designed for cryogenic use • Users should be aware of what to do in the event of emergency, e.g. leak of gas, oxygen monitor sounds • Safety devices, such as oxygen monitors, must be tested periodically to ensure they are functioning correctly	Lab Custodians/ Supervisors/Lab workers	
	Safety Signs and Signals		
12.	• Provide appropriate signs and signals where identified by risk assessment. • Ensure signs and signals are clean and legible and remain so. This applies to Operational Instruction forms for overnight and unattended experiments.	Lab Custodian/ Supervisor	
13.	Observe signs and signals and follow the warning/instruction given by the sign.	Lab workers	
	Non-routine activities – Maintenance/Cleaning		
14.	• Inform appropriate persons prior to carrying out work within laboratories • Ensure staff/contractors have an awareness of hazards present within laboratories and local rules to be followed	Campus Services and Infrastructure	

Generic Risk Assessment

Risk Assessment Title: Laboratory Safety	Date Reviewed: May 2026	Review Date: May 2029
Overview/Description of Activity: This risk assessment covers general aspects of working within laboratories to prevent exposure to and cross-contamination of hazardous substances.	**Duration/Frequency of Activity**: Day to day general work activities including moving around lab, storage, and cleaning.	
Location of Activity: All laboratories on University property	**Generic or Specific Assessment:** Generic assessment to be used as basis for generating area specific risk assessments	

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
1a	Incidental exposure to low concentrations of hazardous substances (chemical/biological) during laboratory work	Lab workers ingest hazardous substances during work activity resulting in illness	• Lab safety rules identified and communicated • No eating, drinking, chewing gum or applying cosmetics in the lab • No pipetting by mouth • Avoid touching face with gloved hands • Do not use mobile phones	2	4	8	• Local rules to be enforced by lab custodians/supervisors • Check of compliance with local rules during safety inspections

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
1b	Incidental exposure to low concentrations of hazardous substances (chemical/biological) during laboratory work	Lab workers skin contact with hazardous substances during work activity resulting in illness	• PPE requirements identified and communicated • Lab workers follow PPE instructions • Long hair and loose clothing tied back to prevent contact with hazardous substances and transfer to skin • Contact lenses should not be handled • Washing facilities and eye wash readily available • Lab workers wash hands prior to leaving lab • Cuts/open sores should be covered • Open footwear should not be worn	2	4	8	• See 1a

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
1c	Exposure to low concentrations of hazardous substances (chemical/biological) from contact with lab surfaces due to poor housekeeping/spills not cleaned-up	Other lab workers/visitors/ Contractors/ Cleaning staff skin contact with hazardous substances resulting in illness/burn/irritation	• All persons entering lab should comply with PPE requirements • All persons entering lab should follow basic local rules • All persons entering lab should be provided with appropriate induction training or be supervised • Lab workers should clean-up spills promptly • Lab workers should keep work area clean and tidy	2	3	6	
2	Breakage of items containing hazardous substances either left on floor or knocked off bench due to inadequate storage	Lab workers/visitors/ Contractors/ Cleaning staff skin contact with hazardous substances resulting in illness/burn/irritation. Also, potential for cut (contaminated) from broken glass.	• Items, particularly glass bottles containing chemicals, should **NOT** be stored on the floor • Hazardous substances should be appropriately stored when not in use • Keep items on bench to a minimum, only use what is necessary • Glass chemical containers should not be stored on high shelves	2	4	8	

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
3	Contamination of non-lab areas (e.g. offices) on personal items such as bags, coats, laptops, mobile phones	Office workers/ cleaners/visitors skin contact with and/or ingestion of low levels of hazardous substances resulting in illness/burn/irritation	• Where possible personal items should not be taken into laboratories • If access required to office area through lab, personal items should be taken straight to office area • Alternative storage, such as lockers, should be provided for personal items where practicable • Where contamination is suspected, e.g. spill/splash occurs on item, this should be wiped down/cleaned prior to removal from lab • Do not handle items whilst wearing gloves	2	3	6	• Consider placing items such as mobile phones/iPads in plastic bags to protect them from contamination/spills
4	Items left/stored in walkways and emergency escape routes resulting in potential for trip and falls	Lab workers/visitors/ Contractors/ Cleaning staff trip over item and fall resulting in physical injury such as strain/sprain	• Walkways/emergency exit routes must be left clear of items • Where ladders etc. are necessary to carry out maintenance then lab workers should be informed and area taped off if duration >30minutes or item to be left unattended	2	4	8	

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
5	Release of asphyxiant gas (e.g. argon, helium, nitrogen, Liquid nitrogen) due to leak/failure of regulator/tubing	Potential for low oxygen atmosphere in room/lab resulting in loss of consciousness and fatality	• The volume of gas/liquid nitrogen within rooms/labs should be minimised • Regular maintenance of gas cylinders and associated equipment • Regulators should be compatible with gas used and changed every 5 years • Correct tubing should be used for type of gas used • Regular inspections to check for wear and tear, particularly tubing • Oxygen monitors should be placed in labs/rooms where a risk of asphyxiation has been identified • Users of gas cylinders/nitrogen Dewars should receive appropriate training from a competent training provider	5	1	5	• Occupiers of labs/rooms where asphyxiant gases used should be trained in what to do if oxygen monitor sounds
6	Contact with liquid nitrogen during decanting operations due to splashing	Cold burns/eye damage to user/person in proximity	• Users of liquid nitrogen should receive training in handling liquid nitrogen • Risk assessment for liquid nitrogen handling operations • Appropriate PPE must be worn including cryogenic gloves and safety glasses	3	2	6	

#	Hazard(s) identified	Who might be affected and how	Existing controls & measures	Severity (a)	Likelihood (b)	Risk Rating (a x b)	Additional control/action required
7	Movement of large items; gas cylinders, Dewars, equipment within labs	Physical injury due to manual handling, such as back strain	• Users of gas cylinders/Dewars should be trained in correct technique for moving them • Large items of equipment should be transported on trollies	4	1	4	
8	Use of electrical equipment that is not safe for use, e.g. out of date PAT, electrical lead frayed/damaged	Potential for user to suffer electric shock resulting in tissue burns	• Lab work equipment should be on regular PAT schedule • All lab work equipment should be checked for damage prior to use • Safety inspections include check for PAT and damaged work equipment	4	2	8	• Checking work equipment should be included in lab induction training • Safety inspections checklist should include specific check for unsafe work equipment
9	Use of damaged glassware in experiment	Glassware breaks spilling contents with potential splash on persons in vicinity and exposure to hazardous substance resulting in illness/burn/irritation	• All lab work equipment including glassware should be checked for damage prior to use • Glassware should be stored appropriately to prevent damage • Persons in lab wear required PPE; lab coat/safety glasses	2	4	8	• Checking work equipment, including glassware, should be included in lab induction training

Assessor signature:	**Print name:** **D Robarts (Scientific Safety Advisor)**	**Date:**