

Standard Operating Procedure

Title: Good laboratory practices (GLP) for microbiology and chemistry laboratories



Department	Micro Laboratory	Document no	MICLAB 155		
Title	Good laboratory practices (GLP) for microbiology and chemistry laboratories				
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1.0 DOCUMENT OWNER

Laboratory/Quality Manager

2.0 PURPOSE

This Standard Operating Procedure describes good laboratory practices employed in the QC microbiology and chemistry laboratories

3.0 SCOPE

This Standard Operating Procedure is applicable to the microbiological and chemical laboratories.

4.0 RESPONSIBILITY \ BUSINESS RULES

It is the responsibility of the QC Laboratory Manager to ensure that this SOP is understood and adhered to by all laboratory personnel.

5.0 PROCEDURE

MICROBIOLOGY LABORATORY

5.1 Safety

Safety in laboratories is an individual, as well as management responsibility; however it is the laboratory staff's responsibility to carry out safe work practices.

Recommendations for safe conduct:

- 5.1.1 Never adopt a casual attitude in the laboratory and always be conscious of potential hazards.
- 5.1.2 Never indulge in reckless behaviour in the laboratory.
- 5.1.3 Do not consume food or drink in the laboratory.
- 5.1.4 Clean up all spills immediately.
- 5.1.5 Dispose of specialised wastes (e.g. broken glassware, biological material) in containers reserved for this particular type of waste.

5.2.7 Hands must be washed with an antiseptic skin cleanser before leaving the laboratory.

5.3 Work Practices

5.3.1 All samples should be regarded as hazardous.

5.3.2 Leaking containers should be disinfected, sterilised and discarded.

5.3.3 Microbiological cultures should be clearly identified, dated and appropriately stored.

5.3.4 Controls are to be set up under biohazard cabinet.

5.3.5 Care should be taken to minimise the production of aerosols.

5.3.6 Fungi cultures must be handled within the biohazard cabinet. Fungi should be recognised as potential pathogens and as producers of mycotoxins. Mycotoxins may be lethal or carcinogenic.

Because airborne fungal spores can spread in a similar manner to aerosols, plate cultures shall be handled with utmost care.

5.3.7 Care must be taken when flaming a wire loop, by drawing the loop gradually through the flame from the handle end to the loop.

5.3.8 Keep closed or tape down packets of sterile loops, forceps and pipettes immediately after use.

5.3.9 Needles and syringes must be placed in a puncture resistant container and decontaminated by autoclaving, prior to disposal.

5.3.10 Mouth pipetting is prohibited.

5.3.11 Bench surfaces must be decontaminated with disinfectant solution (eg Viraclean). It is imperative that the work area is decontaminated before work begins and after the work is completed. Only one function at a given time can be conducted on the same bench. E.g. do not carry out streaking of index plates at the same time and on the same bench as where samples are being set up.

5.3.12 Ensure that all contaminated waste is secure to avoid spillage. McCartney bottles must be placed in baskets, test tubes in racks and blender bags in biohazard waste bags.

5.3.13 All contaminated liquids and laboratory equipment must be decontaminated before disposal.

5.3.14 Contaminated re-useable glassware must be autoclaved prior to washing.

5.3.15 Pipettes must be placed in 0.3% domestic bleach solution, (prepared fresh each working day), tip first, to minimise the production of aerosols (then decontaminate by autoclaving).

Title: Good laboratory practices (GLP) for microbiology and chemistry laboratories

- 5.5.1 Containers containing biological hazard waste must be labelled as such on the lid and on the body of the container.
- 5.5.2 Sharp objects should be collected in a rigid, puncture-proof container.
- 5.5.2 Non-infectious material such as waste paper, plastic and paper products should be collected in a single layer garbage bag.
- 5.5.4 Infectious material such as Petri dishes, culture bottles, disposable equipment, used gloves, must be collected in a double layer, heavy duty autoclavable plastic bag and then decontaminated by autoclaving prior to disposal.
- 5.5.5 Blood and serum (including empty bottles) must be autoclaved prior to disposal.

5.6 Treatment and Disposal of Contaminated Wastes

- 5.6.1 All infectious material must be sterilised by autoclaving.
- 5.6.2 Bags must be wide open when placed in the autoclave, so the steam can easily penetrate the contents of the bag.
- 5.6.3 Monitor the efficacy of the sterilisation cycle by including a biological indicator (*Bacillus stearothermophilus*) once a month. Routinely monitor each cycle with thermologs.
- 5.6.4 Once the bag has been sterilised, dispose of liquid in bag by cutting bottom corner and drain the liquid into a white disposal container.

5.7 Laboratory Cleaning

- 5.7.1 Work areas should be free from objects not relevant to the work being undertaken.
- 5.7.2 Work benches must be decontaminated before work commences and after the work has been completed.
- 5.7.3 Benches and work surfaces must be cleared at the end of each working day and then disinfected.
- 5.7.4 Open shelves, equipment and reagent bottles should be cleaned routinely by laboratory staff.
- 5.7.5 Cleaners must clean windows, walls and exhaust hoods as required.
- 5.7.6 Floors will be mopped by cleaners on a daily basis either before commencement or after completion of work using an approved disinfectant.

5.8 Laboratory Equipment

Safety in laboratories is an individual, as well as management responsibility; however it is the laboratory staff's responsibility to carry out safe work practices.

Recommendations for safe conduct:

- 5.10.1 Never adopt a casual attitude in the laboratory and always be conscious of potential hazards.
- 5.10.2 Never indulge in reckless behaviour in the laboratory.
- 5.10.3 Do not consume food or drink in the laboratory.
- 5.10.4 Clean up all spills immediately.
- 5.10.5 Conduct fortnightly safety inspections of the laboratory to determine unsafe practices or situations.
- 5.10.6 Do not lift heavy objects without aid from an additional person or lifting aid.
- 5.10.7 All personnel must be acquainted with the location of safety equipment and emergency procedures in case of fire, explosion etc.
- 5.10.8 Laboratory gowns must be worn and fully fastened before entering the laboratory.
- 5.10.9 Laboratory gowns must be removed before going to the canteen or toilets.
- 5.10.10 Laboratory gowns must be changed to a separate and clean gown when entering the manufacturing area.
- 5.10.11 Long hair may constitute both a fire risk and risk of contamination; therefore it must be tied back with a hair band.
- 5.10.12 All injuries must be reported immediately to a First Aid Officer.
- 5.10.13 Wet floor sign must be displayed when liquid is on the floor to prevent injuries occurring.
- 5.10.14 Mouth pipetting is prohibited.

5.11 Apparel

- 5.11.1 Protective clothing in the form of laboratory gown and long pants must be worn at all times within the laboratory.
- 5.11.2 Protective shoes (toes covered) with impervious leather upper and non slippery sole must be worn, within the lab areas.
- 5.11.3 Safety shoes are to be worn in manufacturing areas and when working with gas cylinders, disposal of waste and sampling.

- 5.13.3 For spills greater than 20 litres, spills that cannot be contained or spills that may be released to the environment or trade waste, report the spill to EHS immediately.
- 5.13.4 For all other spills, paper towel, absorbant mats or the Zeo Fresh spill kit can be used. The Zeo Fresh spill kit can only be used for any specific spills applicable to the kit, and staff must complete the disc training before allowed to use the kit.

5.14 Waste Disposal

- 5.14.1 Liquid chemical waste should be disposed of as instructed in LAB-140 Disposal of Laboratory Waste and should be stored and segregated according to dangerous goods class.
- 5.14.2 Sharp objects such as broken glass and syringes should be collected in a rigid, puncture-proof container.
- 5.14.3 Recyclable waste such as paper, cardboard, glass and plastic bottles (that are not contaminated by any chemicals, solvents or products) should be disposed of in the recycling bins located outside the laboratory.
- 5.14.4 Empty Winchester bottles should be defaced, rinsed adequately, the lid placed on and disposed of in the bin labelled “Recycling Bin Winchester Bottles Only”, which is located in the chemistry laboratory washroom.
- 5.14.5 Solvent soaked rags like chux and paper towel must be put into the red bin in the fume hood area.
- 5.14.6 Expired reagents must be disposed of by contacting the EH&S department, who will collect the containers and arrange for their disposal.
- 5.14.7 All other solid waste should go into the bins, including empty reagent bottles (non-glass) which must be defaced and rinsed out to remove any chemical residues

5.15 Laboratory Cleaning

- 5.15.1 Work areas should be free from objects not relevant to the work being undertaken.
- 5.15.2 Benches and work surfaces must be cleared at the end of each working day and then cleaned.
- 5.15.3 Open shelves, equipment and reagent bottles should be cleaned routinely by laboratory staff.
- 5.15.4 Cleaners must clean windows, walls and exhaust hoods as required.
- 5.15.5 Floors will be mopped by cleaners on a daily basis either before commencement or after completion of work.

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ALIR – Analytical Laboratory Investigation Report.

PPE – Personal Protective Equipment

7.0 RELATED DOCUMENTS

7.1 [LAB-140 Disposal of Laboratory Waste.](#)

7.2 [MICLAB-165-Spill Management Program.](#)

8.0 SUMMARY OF CHANGES

Version #	Revision History
MicLab-155	New