Use of a Biological Safety Cabinet

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# Purpose

<<<< This SOP is left in DOCX format so that you may edit it for your own laboratory>>>

The purpose of this SOP is to lay out the responsibilities, equipment and procedures required for use of a biological safety cabinet.

# Scope

This SOP applies to all persons prescribing and requiring to use a biological safety cabinet for both BSL1 and BSL2 work.

# Responsibilities

## Supervisors

Supervisors are responsible for:

* **Reviewing this SOP on a regular basis. Review is to consider and mitigate the risks of spill, loss of containment and exposure or other harm. Refer to Performing Risk Assessments SOP.**
* Ensuring the biological safety cabinet is in good repair.
* Ensuring the biological safety cabinet is NSF49 certified after installation, movement or repair.
* Ensuring the biological safety cabinet is NSF49 certified annual if used for BSL2 work.
* Ensuring that all workers under their supervision are trained on and are proficient in performing the steps of this SOP.

## Workers

Workers are responsible for:

* Following this SOP as approved by their supervisor
* Reporting any broken equipment immediately to their supervisor

# Equipment Needed

* Biological safety cabinet
* Disinfectant effective against your microorganism
* 70% ethanol for environmental contaminants
* Waste container
* Wastebags
* Paper towels

# Before You Begin

1. Check to be sure you are using the right cabinet for your work.
2. Check that it has been certified to NSF 49 within the year if used for BSL2 work.
3. If not up to date with NSF 49 certification, or if signed for Level 1 use, work with risk group 2 material is prohibited.
4. Turn off the UV light whenever anyone is in the room.
5. Turn on the fluorescent light.
6. When you first turn the cabinet on, let the cabinet run for 5 minutes. This purges the work area of ‘dirty’ lab air.
7. Ensure any alarms are functioning by testing them
8. Check the magnehelic gauge by comparing the gauge number with the number written on the certification sticker.
	1. If the gauge reads 0.2 units higher or more compared to the sticker value, do not use because the filter is loaded and re-certification or filter replacement may be warranted.
	2. If the gauge reads 0.2 units or more, lower than the sticker, do not use the BSC because there is a hole in the system somewhere and you and your samples are no longer protected from biohazardous aerosols or contamination.
9. Check to be sure that the sash/window is in the correct position, this should be marked on sashes that move up and down.
10. Check to ensure that the drain valve is closed.
11. Use a disinfectant on all cabinet surfaces. Follow manufacturer’s instructions for contact time.
12. Never block the grilles at the front of the cabinet.
13. Only bring into the cabinet that which can be sprayed in and out, or other wise discarded.
14. Segregate clean things from dirty ones.
15. Assemble a waste container or waste bag inside the cabinet.
16. (optional) Line the immediate work area with absorbent, plastic-backed material.
17. Load the cabinet by spraying in with 70% ethanol to remove environmental contaminants.

# While Working in the Cabinet

1. Wear a clean lab coat, tape wrists so the cuffs to not drag over the work surface.
2. Don first pair of gloves and pull gloves over cuff. Tape secure if necessary.
3. If using second pair of gloves (recommended), don second pair.
4. Verify that gloves are chemical-resistant to your disinfectant. If gloves are not sterile, spray with 70% ethanol to remove environmental contaminants.
5. Only one person is to work in the cabinet at a time.
6. Operator should be seated; armpits level with the bottom of the window.
7. Do not use an open flame in the cabinet.
8. Ensure your immediate work area is away from the front opening of the cabinet.
9. Use a limited number of slow movements.
10. Minimize entering and exiting.
11. Enter or exit from straight on, then allow the cabinet to re-stabilize.
12. Minimize movement of non-sterile items near sterile ones.
13. Discard materials at the back of the cabinet, on one side.
14. Do not discard material into containers outside of the biological cabinet
15. Post a copy of your lab protocol for handling spills.
16. Clean spills as soon as they occur.
17. Replace broken or dirty gloves immediately.
18. Leave the cabinet running while you decontaminate all work surfaces.
19. Schedule uninterrupted work times.
20. People walking nearby or doors opening disturb airflow in the cabinet.

# Shutting Down the Cabinet

1. Discard all waste into appropriate containers.
2. Close all working containers to be removed from the cabinet.
3. Surface disinfect all materials with disinfectant.
4. Change gloves.
5. Close all waste bags and surface disinfect the waste bags.
6. Remove everything from the cabinet and disinfect the inner surfaces.
7. Do not store equipment or supplies in the cabinet.
8. Spray gloves with disinfectant and leave them in the cabinet.
9. Let cabinet run for 5 minutes.
10. Turn off lights, motor.
11. Discard gloves into regular waste.
12. Wash hands.