

Appendix G

Selection and Proper Use of Biological Safety Cabinets

New Installation Planning:

- Identify the proper type of biological cabinet that is needed for the work that is going to be performed. Consult with the Department of Environmental Health and Safety for assistance in selecting the right cabinet.
- The placement of the biological safety cabinet in the work area is important. Do not place the cabinet near an exit door, in an area of heavy traffic or under air supply ducts for the room. Activities that cause a disruption of the general airflow will affect the ability of the cabinet to perform properly.

Operational Limitations of Biological Safety Cabinets:

- Biological safety cabinets are not to be used as storage locations of equipment.
- A Type II Class A biological safety cabinet is not to be used with volatile chemicals. The Class A cabinet vents directly back into the room.
- For proper performance and to provide the protection that the cabinet is designed to provide the cabinet must be maintained and serviced as necessary. Failure to maintain the cabinet can result in situations where either, or both, product or personal protection is compromised.

General Procedures:

- Do not use the top of a cabinet for storage. The exhaust filter can be easily damaged by materials falling onto the exhaust filter.
- Do not use the cabinet for long term storage of materials. Keep the inner work surface clear of materials between procedures.
- The biological cabinet is to be field certified at least on an annual basis. The cabinet will meet the NSF Standard 49 (Class II Biohazard Cabinetry) or the manufacturer's specifications for proper operation.
- Identify the chemicals that are going to be used and obtain a Material Safety Data Sheet (MSDS) for those items. Review the information contained in the MSDS with personnel before the material is put into use. The MSDS must be readily available for review.
- Identify any special precautions associated with biological agents that are going to be manipulated. Have written procedures for special handling and cautions.
- Identify and establish written procedures for the use of the biological safety cabinet and for spill containment.
- Maintain a use log of organisms or agents used in the cabinet. The log will also contain a record of all maintenance performed. The log will be a permanent record for the cabinet.

Preparation for Use:

- If a UV light is present in the cabinet, the UV light is to be turned OFF whenever people are going to be working in or in the area of the cabinet.
- Check the drain valve to make sure that it is closed. To be closed the valve handle should be parallel to the bottom of the cabinet (at a right angle to the valve).
- If the cabinet is OFF, turn ON the blower to initiate the airflow within the cabinet.
- If the front sash is movable, set the sash at the proper operational height for the cabinet.
- The work surface should be disinfected with an appropriate disinfectant that will kill the microorganisms that are likely to be present.
- Allow the cabinet to operate for 5 minutes to establish air flow patterns.
- Check the cabinet for proper operation; i.e., check the manometric gauge for reference.

Note: *If the cabinet is NOT operating properly, as designed, DO NOT use the cabinet until the problem has been corrected. Failure to have an operational problem corrected can result in the exposure of the operator to the agents that are being manipulated in the cabinet with the potential of serious consequences.*

- Place only needed equipment inside the cabinet, do not block or obstruct the front or rear ventilation grilles of the cabinet.
- Establish work zones within the work surface area to minimize cross contamination, clean materials should be upstream of contaminated areas.
- Do not place upright pipette collectors in the cabinet use a flat collection tray with a cover to contain used pipettes.
- A biohazardous material collection bag should be placed inside the cabinet to contain biohazardous waste material. Passing generated biohazardous waste material outside of the cabinet to a collection bag may cause the operator to be exposed to aerosolized infectious materials.

Working in the Cabinet:

- Wash hands before starting to work in the cabinet.
- The use of PPE (personal protective equipment) is required even while working in a biological safety cabinet. ANSI approved safety glasses or goggles are to be worn, a lab coat with appropriate gloves. Wearing of shorts and sandals are discouraged while working.
- No eating, drinking or chewing of gum while working in a biological safety cabinet.
- Only one person is to work in a cabinet at a time.
- Do not use volatile organic compounds in a Class II Type A biological safety cabinet.
- Adjust seating height so that the operator's arms do not rest on the front edge or block the front grille.
- Do not use open flames in a biological safety cabinet. If a flame source is needed use a touch-o-matic type flame source.

- Movements in and out of the cabinet while working should be straight in and out and should be kept to a minimum, avoid sweeping movements that will cause a disruption of the airflow profile within the cabinet.
- Use the biohazardous material collection bag inside of the cabinet to contain biohazardous waste and to reduce to passing of the operator's arms through the clean zone of operation.

Post Procedure Clean Up:

- Potentially contaminated equipment within the cabinet must be surface disinfected before being removed from the cabinet.
- Use an appropriate disinfectant on the work surface once cleared of equipment.
- After all potentially contaminated equipment has been disinfected, remove gloves and wash hands.
- If the cabinet blower is going to be turned OFF, allow the cabinet to run for several minutes to perform a final purge of the cabinet.
- If a UV light is activated, pull the front sash down to close off the front opening of the cabinet. DO NOT activate a UV light if the sash is fixed in place and there are going to be people working in the vicinity of the cabinet.
- Do not store materials or supplies inside of a biological safety cabinet.