

Biosafety Cabinet – Usage and Cleanliness (SOP)

Cell Culture Cleaning Requirements

Chem. Sci. Bld. Room S012. Bio-Imaging Facility, Cell Culture Room

Preparing for work in the BSC

1. Before starting work in the BSC, review all procedures that will be used; identify the necessary equipment and materials that will be needed and develop a plan for safe and efficient work.
2. If the cabinet is not running, turn on the blower and fluorescent lights and turn off the UV light if it is on.
3. Verify that the BSC is operating correctly:
 - a. Check the instrument display/gauges for operational status.
 - b. Check the intake and exhaust grills for obstructions.
 - c. Check that the sash is in the appropriate position.
 - d. Check for the inward flow of air at the face of the BSC by holding a tissue near the bottom edge of the sash.
4. Wipe down the interior surfaces of the cabinet with an appropriate disinfectant such as **70% ethanol**, or 1:100 dilution of household bleach (0.05% sodium hypochlorite). Note that bleach, although an excellent and inexpensive disinfectant, will react with stainless steel surfaces of the hood and must be followed with a rinse of sterile water or 70% ethanol.
5. Load the cabinet with materials that will be needed for the procedure, wiping their surfaces with 70% ethanol to minimize the introduction of contaminants into the BSC. Position the materials near the back of the hood and organize them in a manner that will allow for the separation of clean and contaminated items during your work in the hood. Only materials needed for immediate work should be placed in the cabinet. Extra supplies (gloves, culture flasks/plates should be stored outside the cabinet).
6. Before beginning your work, allow the hood to run for a minimum of 5 minutes to purge any airborne contaminants from the work area.

Completion of work in the BSC

1. Discard all waste materials generated by your work into appropriate containers inside the BSC. Close or cover all open containers.
2. Allow the cabinet to run for 3 to 5 minutes with no activity.
3. Disinfect the surfaces of all materials, equipment and containers that will be removed from the BSC, to minimize subsequent contamination in the laboratory.
4. Remove contaminated gloves and dispose of them appropriately
5. After putting on a clean pair of gloves, remove all materials from the BSC.

- 6 Wipe down all interior surfaces of the BSC with an appropriate disinfectant.
- 7 If the BSC is not scheduled for subsequent use, turn off the fluorescent light and cabinet blower. BSCs are designed for 24 hour operation, but in the interest of energy conservation it should be shut down when it will not be used for an extended period of time.
- 8 Turn of the UV light if the cabinet is equipped and if appropriate.

Working in the BSC

- 1 Wear appropriate personal protective equipment (PPE). At a minimum, a lab coat with close-fitting sleeves and gloves should be worn. Because it is appropriate to wash your hands after removing gloves, double-gloving is a good option if you anticipate the need for glove changes during your work or in the event of a spill a double pair of gloves adds an additional layer of personal protection.
- 2 Proper aseptic technique is essential. The BSC will prevent aerosol contamination but will not prevent contact transfer resulting from poor technique.
- 3 Avoid rapid, sweeping movements of the arms into or out of the cabinet. Move items into our out of the cabinet slowly and perpendicular to the face of the cabinet to minimize disturbance to the protective curtain of air.
- 4 Do not block the air flow in the BSC by resting your arms or placing discarded plastic wrappers, procedure notes or other materials on the grill at the front of the BSC.
- 5 Organize your work to maintain a separation of clean materials from materials that have become contaminated during use.
- 6 Provide a container(s) within the BSC for the collection of contaminated waste and other materials. Repeated movement out of the hood to discard pipettes or other waste materials can disrupt airflow in the cabinet and marginalize the protection to both the individual working at the BSC and to the cultures that are being manipulated.
 - a. Low profile, horizontal containers are preferable to vertical containers as they are less obstructive to airflow in the cabinet.
 - b. Contaminated items that will not be reused may be placed into small biohazard bag or a similar container.
 - c. If chemical disinfection will be used for the decontamination of reusable items an appropriate disinfectant should be poured into the discard container prior to use.

Alternatively.

- d. If contaminated materials will be sterilized by autoclaving add enough water to the discard pan to ensure that sufficient steam is generated during autoclaving.
- 7 Do not work with open flames or other heat sources. These generate heated convection currents that may disrupt the smooth flow of air in the hood and may also damage the hood's HEPA filters.

Cleaning and Disinfection

Work surfaces and equipment shall be cleaned and decontaminated on a regular basis with a freshly made solution of household bleach diluted between 1:10 to 1:100 or another suitable cleaner/disinfectant.

1. After completion of procedures involving potentially infectious materials.
2. Immediately after a spill of potentially infectious material and/or when surfaces or equipment become overtly contaminated.
3. After a work shift, if the surface may have become contaminated since the last cleaning.
4. Equipment used for work with potentially infectious materials shall be decontaminated prior to repair, service or decommissioning.

NOTE: If bleach solutions are used for disinfection in the BSC, the stainless steel surfaces must be wiped with a solution of 70% ethanol, to remove any bleach residue and minimize the corrosive effects.