Biosafety Cabinet Cleaning and Decontamination	SOP #: RSP.014.01
Effective Date	5.22.2020
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1. Purpose

Biological Safety Cabinets (BSCs) are among the most common and effective primary containment devices used in laboratories to protect individuals when working with biological agents. Proper maintenance, aseptic technique and daily decontamination contribute to the containment and sterility of a BSC. In addition, periodic thorough surface decontamination routines, including disinfecting all removable parts and surfaces is recommended by the manufacturer and is a good laboratory practice to reduce wear on the equipment and provide greater safety to the user, samples and the environment. This standard operating procedure (SOP) outlines the procedure regular use and cleaning of a BSC as well as the procedure for performing a thorough surface decontamination of a BSC.

2. Related Policy/Authority

B8520 Biosafety (https://burrell.edu/policy-b8520/)

3. Faculty/Staff Responsibilities

Laboratory Director or Scientific Research Associate

3.1.1 Responsible for ensuring this SOP is followed by all laboratory personnel.

3.1.2 Responsible for ensuring that BSCs are decontaminated at a minimum annually and that trained personnel perform the procedure.

3.2 Laboratory Personnel

3.2.1 Responsible for adhering to Sections 5.1 and 5.2 of this SOP any time they conduct work in a BSC.

4. Definitions/Abbreviations

4.1. Biological Safety Cabinet (BSC) - also called a biosafety cabinet, is an enclosed, ventilated primary containment device. It is designed to protect the user and surrounding environment while working with biological agents. It may also function to protect materials being manipulated within the cabinet from environmental contamination.

4.2. Decontamination – the process of removing, neutralizing, or destroying harmful substance or contaminants.

4.3. Disinfectant - chemical agents designed to inactivate or destroy microorganisms on inanimate objects and inert surfaces

4.4. Personal Protective Equipment (PPE) - equipment worn to minimize exposure to hazards that cause injuries and illnesses. PPE may include items such as gloves, safety glasses, face shields,

goggles, safety shoes, earplugs or muffs, hard hats, respirators, protective clothing, coveralls, vests, and full body suits.

5. Procedural Steps

5.1. Preparing for work in the BSC

5.1.1. Laboratory staff performing work in the BSC must wear (at minimum) a long-sleeved lab coat and gloves, even when not manipulating culture or materials.

5.1.2. Turn on the blowers, lights, and outlets, set the sash at the operating height and allow the BSC to operate for a minimum of 15 minutes before beginning disinfection of the interior of the cabinet (Step 2). Do not place anything in the BSC during this period.

5.1.3. Once the cabinet has been operational for 15 minutes, disinfect all interior surfaces of the cabinet thoroughly by spraying with 70% ethanol; allow to air dry.

5.1.4. Spray the surfaces of all items placed into the cabinet with 70% ethanol to minimize the introduction of contaminants into the BSC.

5.1.4.1. Note: Only materials needed for immediate work should be place in the cabinet. Extra supplies (gloves, culture flasks/plates) should be stored outside the cabinet.

5.1.5. After disinfecting the interior surfaces and before beginning your work, allow the BSC to run for a minimum of 5 minutes to purge any airborne contaminates from the work area.

5.2. Completion of work in the BSC

5.2.1. Discard all waste materials generated by your work into appropriate containers inside the BSC. Close or cover all open containers.

5.2.2. If you generated biohazardous waste, remove the bag from the holder and secure the bag closed with tape. Spray the exterior surface biohazard bag with 70% ethanol. This step is to be completed in the BSC.

5.2.3. Dispose of biohazard bag in one of the large biohazard containers outside the BSC.

5.2.4. Allow the BSC to run for 5 minutes with no activity after your work is completed.

5.2.4.1. Note: Thoroughly saturate gloves with 70% ethanol whenever taking hands out of the BSC. Allow ethanol to air dry before degloving.

5.2.5. Thoroughly saturate all interior surfaces of the BSC and all materials, equipment and containers that will be removed from the BSC with CaviCide® and allow to remain visibly wet for 3 minutes.

5.2.6. Thoroughly saturate all materials, equipment and containers that will be removed from the BSC with 70% ethanol. Wipe dry as you remove them from the BSC.

5.2.7. Spray all interior surfaces of the BSC with 70% ethanol and wipe dry.

5.2.8. Allow BSC to run for at least 15 minutes before allowing another investigator to begin working in the BSC.

5.3. Decontamination of BSC

This procedure is to be performed only by authorized, trained personnel at least once annually.

5.3.1. Personal Protective Equipment (PPE)

5.3.1.1. Always wear appropriate PPE when working in or near the BSC and when performing decontamination procedures.

5.3.1.2. At minimum, PPE includes long pants, closed-toed shoes, a lab coat, gloves and eye protection. Whenever possible, tuck lab coat cuffs inside gloves.

5.3.2. Preparing to decontaminate a Biosafety Cabinet (BSC)

5.3.2.1. Plan on at least an hour or more of uninterrupted time to complete a thorough disinfecting routine.

5.3.2.2. Set up an area adjacent to the BSC to place the items during disinfection and ensure

that absorbent materials are available to soak up the disinfectant being used.

5.3.2.3. Have a partner available to help move the heavier removable parts in and out of the BSC.

5.3.2.4. Determine the appropriate disinfectant and contact time for decontamination based on the microbiological materials used in the BSC.

5.3.3. Thorough Surface Decontamination Procedure

5.3.3.1. Turn on the blowers and lights, set the sash at the operating height and allow the BSC to operate for a minimum of 15 minutes before beginning disinfection.

5.3.3.2. Check the pressure on the analog or digital gauge. The pressure should be the same after cleaning and if not, could indicate the HEPA filter was disrupted and the BSC may require recertification.

5.3.3.3. Spray disinfectant on a biohazard waste bag and place it in the BSC to collect the used absorbent materials.

5.3.3.4. Remove and place any small removable parts on the workbench surface.

5.3.3.5. Working from left to right and top to bottom, spray or wipe disinfectant on all internal surfaces: the left wall, back wall, and right wall. Next, spray or wipe the workbench and the entire inside of the glass sash. Allow the disinfectant to soak while conducting the next steps.

5.3.3.6. Carefully loosen any thumbscrews to release the removable workbench surface. To ensure thorough cleaning of the workbench area, these parts will be removed and cleaned outside of the BSC.

5.3.3.7. Using a partner, life the front perforated grille and spray or wipe with disinfectant. Remove from the BSC.

5.3.3.8. Using a partner, lift the removable workbench surface and spray the underside with disinfectant. Remove from the BSC and prop up against a sturdy surface adjacent to the BSC (e.g., lab bench) by positioning perpendicular on the floor on top of several layers of absorbent materials (e.g., lab bench protectors, soakers).

5.3.3.9. Clean the front perforated grille and removable workbench surfaces by spraying disinfectant onto the outward facing surfaces. Allow for appropriate contact time to elapse before scrubbing and wiping. Turn the pieces over and repeat the cleaning process.

5.3.3.10. Remove gloves and wash your hands with soap and water. Dry hands and put on a new pair of gloves before re-entering the BSC to complete the disinfection process under the workbench surface now that it is removed.

5.3.3.11. Inspect under the workbench surface. Using tongs or forceps, carefully remove any debris such as paper towels, stray sharps or broken glass.

5.3.3.12. Check for debris in the paper catch grid in the air duct wall.

5.3.3.13. Disinfect the under workbench surfaces including tray supports and the plenum drain area. Rinse by spraying sterile distilled water if required and follow with spraying 70% ethanol. Wipe dry.

5.3.3.14. Once the grille and workbench have been thoroughly cleaned outside of the BSC, remove gloves and wash your hands with soap and water. Dry hands and put on a new pair of gloves before re-entering the BSC.

5.3.3.15. Using a partner, carefully replace and reposition the grille and removable workbench surface back into the BSC.

5.3.3.16. Carefully tighten any thumbscrews to secure the workbench surface in place.

5.3.3.17. Disinfect the grille and workbench surface.

5.3.3.18. Working from left to right and top to bottom, spray or wipe with sterile distilled water if rinse is required on all internal surfaces: the left wall, back wall, and right wall, then the workbench and the entire inside of the glass sash. Wipe dry.
5.3.3.19. Working from left to right and top to bottom, spray or wipe 70% ethanol on all internal surfaces: the left wall, back wall, and right wall, then the workbench and the entire inside of the glass sash. Wipe dry.
5.3.3.20. Transfer all waste materials into the biohazard bag, close the bag inside of the cabinet, and wipe with disinfectant prior to removal.
5.3.3.21. Repeat the check of the pressure reading. The pressure should be the same after cleaning and if not, could indicate the HEPA filter was disrupted and the BSC may require recertification.
5.3.3.22. Close the sash on the BSC as usual.
5.3.3.23. Remove all PPE and dispose in the biohazard waste.
5.3.3.24. Wash your hands with soap and water.

6. Reports/Charts/Forms/Attachments/Cross References

6.1. Identify if any reports are required to include data elements.

7. Maintenance

Annually

8. Signature

Signature on File	12.6.2021
Assistant Dean for Research	Date

9. Distribution List

Internal/External

10. Revision History

Revision Date	Subsection #	Summary of Changes	New/Cancellation/ Replacement Procedure? (if applicable)	Approval Date
1	[e.g., 3.1]			
11/30/2021		Reviewed and copy edited.		12.6.2021