



Working Safely in a Biological Safety Cabinet

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Precautions

- Keep papers, paper towels, Kim Wipes, work surface diapers, vials, or any other objects from being pulled in the back, front, or side slots or grills. These items can damage the cabinet's internal components.
- Do not store equipment or supplies in the cabinet.
- Do not use the top of the cabinet for storage. The HEPA filter could be damaged and the airflow disrupted.
- Never disengage the alarm. It indicates improper airflow and reduced performance that may endanger the researcher or the experiment.

Personal Protective Equipment:

Appropriate personal protective equipment (PPE) must be worn. Lab coats must be buttoned. Gloves should be pulled over the wrists of lab coat, not worn inside coat. Additional PPE to be used as recommended.

Preparing BSC for work:

- Confirm BSC annual (within 12 months) certification is current (certification information is located on the sticker at the front of the BSC).
- If the BSC has a UV light, turn the UV light off prior to starting work.
- Operate cabinet blowers at least 3-5 minutes before beginning work to allow the BSC to "purge" particulates.
 - Listen for the blower to verify there is airflow.
 - If installed, verify the BSC's gauges and indicators have the appropriate readings.

WARNING: Never operate a BSC while a warning light or alarm is on. Call EHS at (734) 647-1143 to service failing BSCs.

- Wipe down the following BSC surfaces with the appropriate disinfectant for the materials in use:
 - Work surface
 - Interior walls (except for the supply filter diffuser)
 - Interior surface of the window

NOTE: Use one the following disinfectants to wipe down the surfaces:

- 70% ethanol (EtOH)
- A 1:10 dilution of household bleach (i.e., 0.05% sodium hypochlorite)

NOTE: When bleach is used, a second wiping with sterile water is needed to remove the residual chlorine, which may eventually corrode stainless steel surfaces.

- Other disinfectant as determined by the investigator to meet the requirements of the particular activity

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- Wipe down the surfaces of all materials and containers that will be placed in the cabinet with 70% EtOH to reduce the introduction of contaminants to the cabinet environment.
 - Store extra supplies (e.g., additional gloves, culture plates or flasks, culture media) outside the BSC
 - Place all the equipment and supplies, including receptacle for waste and used pipettes, inside the BSC to minimize entering and exiting. When placing the equipment and supplies into the BSC:
 - Segregate items that will remain clean from the ones that will become contaminated
 - Place all materials as far back in the BSC as practical, toward the rear edge of the work surface and away from the front grille of the cabinet
 - Place aerosol-generating equipment (e.g., vortex mixers, tabletop centrifuges) toward the rear of the cabinet
 - Place bulky items such as biohazard bags, discard pipette trays and vacuum collection flasks to one side of the interior of the cabinet
 - Keep all materials at least four inches inside the sash opening. Never place items on the front or rear perforated grills.
 - Connect aspirator bottles to vacuum system (including an inline HEPA filter) or, alternatively, use a collection flask to suction liquid waste. Both systems must contain the appropriate disinfectant.
 - After placing equipment inside, close the sash to the proper operating height.
 - Wait 2-3 more minutes before beginning work.
 - Close drain valve

Working in the BSC:

- Confirm everything necessary for the procedure is already inside the BSC and is sterile.
- Ensure the vertical sliding sash at the correct height.
- Allow only one BSCs operator at a time.
- Sit at the BSC with armpits level with the bottom of the sash.
- Perform all operations at least 4 inches from the front grille on the work surface.
- Minimize activities that create eddy currents (opening and closing doors and windows, personnel walking near the cabinet).
- Perform all work using a limited number of slow movements, as quick movements disrupt the air barrier.
- Disposable underpads can be placed on the work surface, but must not cover the front or rear grille openings. The use of toweling facilitates routine cleanup and reduces splatter and aerosol generation during an overt spill.
- Hold Petri dishes and tissue culture plate lids above the open sterile surface to minimize direct impact of downward air.
- Recap and cover bottles and tubes as soon as possible.
- Decontaminate bacteriological loops and needles.

After Using the BSC

- Turn off equipment used to decontaminate bacteriologic loops and needles, if used.
- Decontaminate materials that will be removed from the BSC.

NOTE: Refer to the laboratory SOP for instructions about the decontamination process within the laboratory.

- Place contaminated items into a biohazard bag, discard tray, or other suitable container prior to removal from the BSC.
- Run the BSC for three minutes, WITH NO ACTIVITY, so the airborne contaminants will be purged from the work area
- Remove equipment.
- If using a UV lamp:
 - Clean the UV lamp weekly to remove dust and dirt that may block the germicidal effectiveness of the UV lamp
 - Check the output of the UV lamp weekly to ensure the correct intensity of the UV light is being emitted

Cleaning the BSC after Use

- Clean the BSC after each use.
- Wipe the interior surfaces with 70% ethanol.

NOTE: Do not use a spray bottle to apply the disinfectant to surfaces. The solvent vapor concentrations will be re-circulated in the hood.

- Wipe (or disinfect) the surfaces of potentially contaminated materials.