

Fundamentals of Working Safely in a Biological Safety Cabinet (BSC)

Safe Use of a BSC

After you have completed your initial decontamination, preparation and checks of the BSC, you can begin work. Remember to wear PPE appropriate for the work you will perform. Some groups require that you line your immediate work area with absorbent plastic-backed material to prevent contamination of the work surface and facilitate cleanup.

That practice is determined by your risk assessment and SOPs, but do not allow this material to block the front or rear air grilles.

Before loading the BSC, it is a good practice to wipe the external surfaces of all needed supplies with disinfectant to reduce the introduction of outside contaminants into the cabinet

It is recommended to load necessary materials once in the beginning to minimize your arms entering and exiting while working.

Don't forget a biohazardous waste container, sharps container, paper towels, or wipes. Please note, large autoclave pans should only be used in six foot or larger BSCs. For smaller BSCs, alternative biohazardous waste containers or bag stands should be used.

Remember the clean-to-dirty principle and place clean materials on one side of BSC and the biological waste and sharps container on the opposite/dirty side. In this video, we are demonstrating placement of materials for a right-handed person. Materials would be reversed for a left-handed person.

Remember to keep the front and rear grilles unobstructed to avoid disrupting the airflow in the BSC. Items should be placed as far back in the cabinet as possible without blocking the rear grille.

While working in a BSC, you should be seated, and only one person should work in the BSC at a time. If two people will need to work in the BSC at the same time, the BSC must be a minimum of 6' wide in length and a risk assessment must be performed and documented.

Sit down at the BSC and adjust the height of the chair so that your face is above the opening and behind the glass.

Your arms should be bent at a 90 degree angle at the elbow while inside the BSC. Some BSC's are designed to allow your arms to rest on the front part of the BSC to avoid fatigue or ergonomic injuries over time. Older BSCs that do not have a built-in arm rest can be supplemented with a separate arm rest that is designed to be placed on the BSC front opening or is attached to the front grille. If used, the BSC should be certified with them in place.

Use a foot support if your legs do not reach the floor or if needed for back comfort

Minimize entering and exiting the BSC; if you need to exit and enter the BSC, pull your arms straight out and insert your arms straight in, perpendicular to the opening. This will minimize air being pulled out of the cabinet and into the breathing zone of the person sitting at the BSC, as illustrated with the smoke machine in the Factors Affecting BSC Airflow video.

Please note: Some laboratory SOPs may require you to remove your contaminated gloves and place them in the biohazard container prior to exiting the BSC and put on new pair of gloves before re-entry.

If using the vacuum system, be sure to protect the vacuum line. This must include using a HEPA filter and capping unused lines.