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

Preparing for Work in a BSC

Prior to starting work in a BSC, schedule uninterrupted work time, if possible and collect all of the laboratory materials that will be needed, such as

absorbent pads, a biohazard waste container, pipettes, pipette tips, microfuge tubes, a vortex, a small sharps container, paper towels and whatever else you may need. Place these materials on a cart next to the BSC.
A plastic squirt bottle with disinfectant will also be required. For the purposes of this training

we're using a generically labeled disinfectant bottle. Use and label disinfectants based on OSHA requirements.

For information on labeling and best practices consult your supervisor or safety office.

First, confirm that the UV light is turned off, then check the expiration date on the BSC certification. BSCs must be certified when installed, whenever moved, and at least once annually.

Next, turn on both the fluorescent light and the blower motor.

Confirm that the alarm button is on, and

open the sash and set it to the proper height as noted on the outside wall of the BSC.
The BSC sash alarm will sound if the sash is set too high.
Next, make sure the drain valve handle is perpendicular to the valve body – indicating that it is closed.

Allow the cabinet to run for at least 4 minutes in order to purge the air of particulates inside the BSC.

If the BSC has a pressure differential gauge, also called a magnehelic gauge, this needs to be checked and recorded. Compare the reading to what was recorded previously. Gradual changes will generally occur over time due to filter loading but a sudden change in pressure reading indicates that there is block or breach of the filter system.
Perhaps most important, the reading should never be zero. If this happens, the BSC should not be used and you should contact your Safety Office.

Some labs keep a pressure gauge log taped on the BSC and record the daily readings. That way you can see quickly if there has been a significant change from the previous day.

Inward airflow should be verified prior to use. You can use a smoke generator or you can tape a tissue to the bottom of the sash. The tissue should be drawn into the cabinet to show inward airflow.

Once the cabinet has been running for at least 4 minutes, gather the necessary supplies for decontamination and place them inside the BSC. Decontaminate the inside using an appropriate liquid disinfectant that has been approved as effective against the infectious agents you are working with and has been designated in your laboratory SOP.

Clean all the surfaces with the liquid disinfectant and disposable towels. This includes the side walls, back wall, and the inside of the glass on the sash, and the work surface.
It is not recommended to spray disinfectant inside the BSC because the mist can be drawn internally into the grilles or HEPA filter and this can cause pitting of the stainless steel parts inside the BSC or it can cause damage to the HEPA filter.

It is better to generously moisten a towel and wipe the surfaces, allowing enough contact time for the disinfectant to do its job. Contact time will vary, depending on what is being used. Discard the used towels in the biohazard waste bag.

Don’t ever put your head inside a BSC. If you can’t reach the back wall, use an extendable mop and then discard the used disposable mop cloth into the biohazardous waste.

If bleach has been used as a disinfectant, wipe the BSC surfaces again with water or 70% ethanol to remove any bleach residue. This is because bleach is corrosive and can “pit” the stainless steel, which can provide an ecological niche or environment for microorganisms to evade cleaning and disinfection.
Once you have completed disinfection of the BSC, dispose of you gloves in the biohazard waste container.
The stool or bench should be adjusted to ensure that your face is above the sash opening and that your armpits are level with the bottom of the sash.

As a reminder to perform these tasks, a BSC checklist may be used according to your lab’s protocol.