UNIVERSITÉ Concordia UNIVERSITY

ENVIRONMENTAL HEALTH AND SAFETY

SAFE USE OF THE BIOLOGICAL SAFETY CABINET (BSC)

PREPARING TO USE THE BSC

1. Ensure that opening and closing of lab doors and other personnel activity will be kept to a minimum;
2. Turn off the UV lamp (if used) and turn on the fluorescent lighting;
3. Confirm that the drain valve for the catch basin below the work surface is closed;
4. Adjust the chair height so that the bottom of the sash is level with your armpits;
5. Check pressure gauges to ensure the cabinet is functioning properly; confirm that air is flowing inward by holding a tissue at the middle of the lower edge of the sash;
6. Ensure that the airflow alarm (if present) is on;
7. Wipe down the interior with a disinfectant effective for the material in use. If a corrosive such as bleach is used, rinse with 70% ethanol or sterile water after disinfecting;
8. Place all materials needed for the experiment, including appropriate disinfectant and waste receptacle, inside the cabinet without obstructing the grilles. Do not bring non-essential equipment and supplies into the cabinet;
9. Line the work area with a plastic-backed absorbent pad if there is potential for splatter or splashes of infectious agents or toxins;
10. Place aerosol-generating equipment, such as sonicators or vortexes, toward the rear of the cabinet, without blocking the rear grille;
11. When aspirating liquids, install a secondary flask to collect any overflow, as well as an in-line HEPA 0.2 µm filter between the secondary flask and the vacuum source;
12. Allow the blower to run for at least five minutes before starting work.

WORKING SAFELY IN THE BSC

1. Wear the appropriate PPE.
2. Work toward the rear of the cabinet, without resting elbows and arms on the front grille;
3. To prevent disruption of the air current at the front of the cabinet, avoid excessive movement of arms and hands through the front opening;
4. Do not place waste containers outside the cabinet; position them inside the BSC, near the rear;
5. Separate the work surface into contaminated and non-contaminated areas; ensure that work flows from clean to dirty areas and limit movement of dirty materials over clean;
6. Unless the cabinet has been certified for simultaneous use by 2 users, ensure that only one person at a time works in the BSC;
7. Do not use open flame inside the cabinet;
8. Do not operate vacuum pumps and centrifuges in the BSC. Their use can disrupt airflow and eject particulates at velocities that are too high to be captured by the cabinet.

PREPARING TO SHUT DOWN THE BSC

1. Close/cover open containers;
2. Leave the blower on for at least 5 minutes to allow the cabinet to purge before removing material from the BSC;
3. Surface-decontaminate and remove equipment and materials;
4. Wipe down interior surfaces with an appropriate disinfectant; rinse with water or ethanol if a corrosive such as bleach is used;
5. Turn off the blower and fluorescent lamp, and turn on the UV lamp (if used)

WHAT TO DO IN CASE OF A SPILL IN THE BSC

1. Clean up spills as soon as they occur;
2. Leave the cabinet running;
3. Cover the spill with disinfectant-soaked absorbent paper;
4. If the spill has leaked through the grilles into the catch tray below the work surface, pour in disinfectant (avoid alcohol due to explosion hazard) and allow to sit for approximately 20 minutes;
5. Open the drain valve to collect the liquid into a container and dispose as appropriate;
6. Wipe down surfaces and items in the BSC with disinfectant;
7. Allow the BSC to purge for 10 minutes before continuing work

WHAT TO DO IN CASE OF BSC FAILURE

If the cabinet stops working while in use, the following steps will help to minimize loss of containment:

1. Close open containers of biohazardous material, surface-decontaminate and remove them from the BSC;
2. Surface-decontaminate and remove all other equipment/materials from the BSC;
3. Remove and dispose of biohazardous waste according to Concordia guidelines;
4. Switch off the alarm and blower motor;
5. Affix a warning sign (e.g. "OUT OF ORDER. DO NOT USE") to the cabinet.
6. If the failure is due to:
    - Temporary power outage: restart and decontaminate the BSC when the power returns.
    - BSC malfunction: have the cabinet serviced. Ensure that the BSC is decontaminated before any internal repairs are carried out.
7. To ensure that appropriate medical follow-up action is taken, notify your supervisor if anyone may have been exposed to infectious material due to the cabinet failure and submit an Injury/Near-Miss report to EHS.