Standard Operating Procedure

ALGONQUIN COLLEGE

ASET Biosafety Cabinet

Faculty of Technology and Trades
Rooms: WA129 and WA130
Date Created: July 2014
Date Modified: May 2018

Version #: 2.0
Supersedes: 1.0
Prepared by: Applied Science and Environmental Technology (ASET) representative

1.0 Purpose

This standard operating procedure (SOP) provides general instructions for the safe operation, maintenance, repair and service of the ASET Biosafety cabinet.

2.0 Application

All users of the Biosafety Cabinets (BSCs) in the lab shall be familiar with the precautions outlined below prior to their use. The biological safety cabinets are to be used as the primary engineering control to minimize employee exposure to potentially hazardous biological materials (i.e., containment level 1, 2 agents). The BSC is a piece of equipment designed to protect the operator, the full-time laboratory environment and work materials from exposure to infectious aerosols and splashes that may be generated when manipulating substances containing infectious agents, such as viruses, bacteria and primary tissue cultures.

Manufacturers' Instruction manuals are also available and can be obtained from the Full-time laboratory Technologist.

2.1 Required Documentation

All faculty, staff and researchers must be trained by an individual who is signed off on the SOP, with the exception of students who are directly supervised by an instructor during a regularly scheduled laboratory. Professors are encouraged to review this SOP with their students to ensure safe use. ***Individuals that have completed training will sign-off on this SOP. It is the responsibility of the trainee and trainer to document completion of training by updating the sign-off sheet. Contact the Full-time laboratory Technologist and/or Chair for the sign-off sheet.***

3.0 Safety Precautions and Hazards

3.1 General Safety Rules

1. Do not use this equipment for any purpose other than its intended use, described in this SOP.
2. The biological safety cabinets are not to be used when handling toxic, volatile or flammable materials.
3. Open flames are not to be ignited inside the biological safety cabinet at any time.
4. The ultra-violet (UV) light must be turned off when the biological safety cabinet is in use.

4.0 Emergency Procedures

1. Report any operating issues to the Full-time laboratory Technologist immediately.
2. Biological Spill- **Refer to Biological Spill Response Standard Operating Procedure.**

ASET Biosafety Cabinet

5.0 Definitions

- SOP: Standard Operating Procedure
- ASET: Applied Science and Environmental Technology
- PPE: Personal Protective Equipment
- BSC: Biosafety Cabinet

6.0 Procedures

6.1 Before Working in the BSC

- Plan out your experiment, ensuring that you will have all the required materials in the BSC when you start: eliminating the need to move in and out of the BSC. Items may include equipment, cultures, media, and other needed materials.
- Put on the required Personal Protective Equipment (i.e. gloves, lab coat, goggles) needed for the operations to be performed. Don gloves over your lab coat ensuring there is no exposed skin to minimize potential exposure and contamination.
- Ensure the hood certification is up to date. If the hood certification is not up to date do not use the hood and contact your supervisor or the fulltime Laboratory Technologist to request certification.
- Turn off the UV light (if it is on).
- Turn on the blower (if switch operated) and fluorescent lights. Verify airflow by using a tissue and place the sash in the correct operating position (i.e. armpits level with the bottom of the sash).
- Allow 5 minutes for airflow to stabilize and purge of contaminants in the BSC
- Disinfect all interior surfaces with 70% ethanol or other suitable disinfectant (i.e. bleach).
- Ensure you have the supplies needed for collecting waste and for dealing with a spill.
- Load the BSC with all the items you will need. This is where good planning pays off – nothing should be taken out or put in the BSC once you begin working.
    i. BSC should not be overloaded and make sure all items are at least 4 inches behind the view screen to reduce potential for contamination and disruption of airflow. Make sure not to obstruct the air vents at the back.
    ii. Your work area should be laid out with a clean area, a working area, and contaminated area with the clean and contaminated area usually positioned on opposite sides of the hood.
    iii. Your supplies should be located in the clean area and your disinfectant and waste containers in the contaminated area.
    iv. After assembling your equipment wait 2-3 minutes before beginning to work: to stabilize the air and purge potential air contaminants.

ASET Biosafety Cabinet

6.2 While performing work in the BSC

- While performing activities in the BSC, transfer materials from the clean area through the working area and deposit in the contaminated area. Keep all contaminated materials to the rear of the BSC.
- Work cautiously and methodically to minimize motion, avoid generation or aerosols and limit airflow disruption. When working in the BSC:
  - i. Move slowly and deliberately.
  - ii. When entering/exiting a cabinet, do so from straight on and move your hands straight in and out – not from side to side.
- Avoid moving your hands, pipettes, or other items over open containers or plates to avoid cross-contamination.
- Avoid moving your hands in and out of the BSC.
- DO NOT use an open flame(i.e. Alcohol burner or Bunsen burner) inside the BSC.
- Follow good aseptic techniques as a BSC can control aerosol exposure but not contact exposure.

6.3 Upon completion of work in the BSC

- When finished, ensure all containers (i.e. culture plates, flasks etc.) are closed or covered before removing from the BSC.
- Wipe down all items (including waste bags, pipettes, instruments) with 70% ethanol or other appropriate disinfectant prior to removing from the BSC.
- Remove and dispose of gloves into appropriate waste container inside of BSC. Outside of the hood, don a new set of gloves and remove all the items that have had their surfaces decontaminated with disinfected.
- Place waste in the appropriate waste stream and autoclave appropriate equipment.
- Disinfect all interior surfaces with 70% ethanol or other suitable disinfectant (i.e. bleach) while it is still in operation. This includes bench top, sides and back, and the view screen.
- Allow fan to operate for an additional 5 minutes when there is no activity in the hood to clear the cabinet of contaminants
- Turn off work light and fan, turn on UV light (if applicable), and close the view screen.
- When your work is complete, remove your gloves and wash hands and forearms thoroughly with germicidal soap at the hand washing sinks located in the lab.

7.0 Maintenance

If laboratory staff believe that service is needed for the BSCs (e.g., alarms are sounding, the BSC fails to advance past the warm-up mode, the BSC is not functioning as it usually does, etc.), they will notify the Fulltime Laboratory Technologist. Place a note on the equipment to notify other laboratory personnel of the situation.

8.0 Department Authorization

Signature: _____ Date: May 4, 2015

Rebecca Trueman, Chair ASET