

## Product Introduction

A **Biological Safety Cabinet (BSC)** is a primary engineering control which provides user and sample protection against biohazard and possible contaminants that may significantly affect one's scientific procedure.

A **Laminar Flow Cabinet (LFC)** is designed to provide sterile working environment for products and processes. It should not be used in working with biological agents as it only provides sample protection.

## Application

### Biosafety Cabinet

Mainly used for handling pathogenic biological samples or for applications that require a sterile work zone.

- Microbiology
- Cell/Tissue Culture
- Forensics
- Diagnostic Lab
- Clinical Lab
- Cancer Research
- Toxicology
- Pathology
- Drug Compounding (Non-oncology)

### Laminar Flow Cabinet

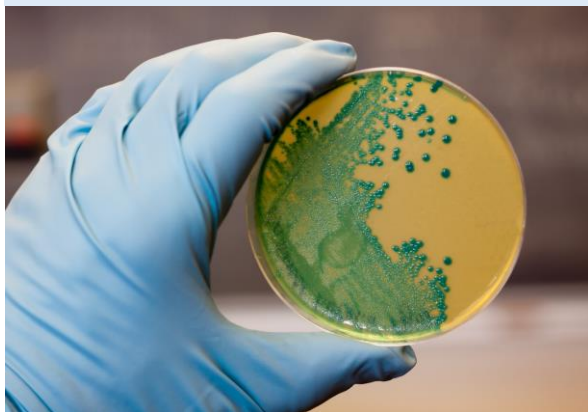
Used in applications where there is no generation of hazardous materials.

#### Horizontal:

- Media Plate Preparation
- Plant and Mammalian Tissue Culture
- Small Electronics Inspection
- Non-hazardous Drug Preparation

#### Vertical:

- Microbiology (Non-pathogenic)
- Large Electronics Inspection
- Forensics
- Non-hazardous Biotechnology Procedures



## Maintenance

Proper and timely maintenance is crucial to obtain optimal working performance of your cabinet. Taking care of your equipment is a must. Services such as preventive maintenance, annual certification, and decontamination (for BSC), should be done by a professional field certifier.



### A. Preventive Maintenance

It aims to prevent unexpected downtimes and failures through routine maintenance and early detection of problems, for the cabinets to stay at optimal performance. The following are the procedures done when performing a preventive maintenance:

- Cleaning the work surfaces and walls with an appropriate disinfectant.
- Removing stubborn stains or spots on the worktop.
- Testing the audible and visual alarm.
- Checking the cabinet's mechanical and electrical functionality for any defect.

### B. Certification

Certification of cabinets must be done annually to lessen the risk of unanticipated failure and prevent the user from any danger. It is comprised of a series of tests in accordance with the manufacturer's specifications and relevant international standards such as NSF-49 for BSC.

- **Inflow Velocity Test**

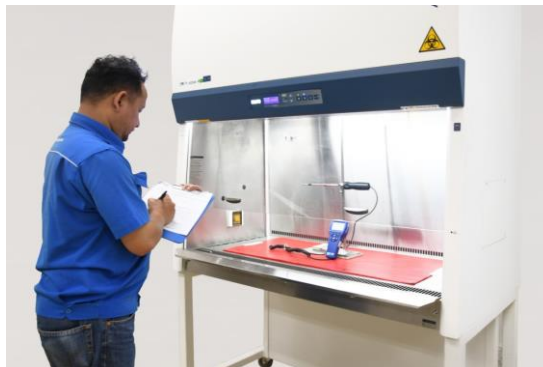
Inflow velocity test measures the inlet volumetric flow rate on the front aperture at nominal operating speed.

*Note: This test applies to BSC only.*



- **Downflow Velocity**

Downflow velocity test measures the movement of air out of the cabinet and determines the performance of the blower.



- **Particle Count Test**

Particle count test determines air quality by counting and sizing the number of particles in the air and classify the cleanliness level in a controlled environment.

*Note: This test applies to LFC only.*



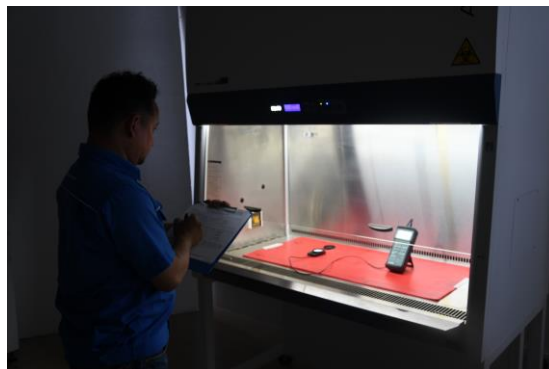
- **Filter Integrity Test**

Filter integrity test verifies the continued efficiency of the filter by introducing particulates and measuring the output.



- **Light Intensity Test**

Light intensity test determines light intensity from fluorescent/LED lamp in front to back centerline work surface level of the cabinet.



- **Noise Level Test**

Noise level test determines noise level of the cabinet during normal operation in front of the work surface area lower edge and above the recessed work surface area.

*Note: This test is optional for field testing.*



- **UV Intensity Test**

UV intensity test determines the light intensity from UV lamp in front to back centerline work surface level of the cabinet.

*Note: This test is optional for field testing.*



### **C. Decontamination**

Gaseous decontamination guarantees ready and safe usage of Biosafety Cabinets after installation, relocation, or filter replacement. It is done by using the following sterilants:

- Chlorine Dioxide
- Hydrogen Peroxide Vapour
- Formaldehyde (if requested by the client due to specific circumstances)

*Note: This type of service is applied to BSC only.*

## Cleaning Procedure

Cleaning a biosafety and laminar flow cabinet is important for containment and sterility. A periodic and thorough cleaning routine, including disinfection of all removable parts and surfaces, is recommended by the manufacturer to provide the utmost safety for personnel, samples, and the environment.

All these cleaning practices should be done on a regular schedule. It is recommended to surface decontaminate the work zone **daily** before and after using the cabinet with 70% isopropyl alcohol (IPA). Moreover, the following are the recommended general cleaning procedures for various parts of the cabinet:

Item	Description
Inner work tray	Wipe off the inner work tray using IPA/suitable cleaning agent/disinfectant.
Inner walls	Wipe off the inner rear and side walls using IPA/suitable cleaning agent/disinfectant.
Drain pan	Clean and dispose unwanted material (if any) from the drain pan under the work tray. Material is to be treated as hazardous waste and is to be properly disposed of.
Paper catch	Remove for any retained or unwanted material (if any) at the paper catch. Material is to be treated as hazardous waste and is to be properly disposed of.
Air diffuser	Wipe off the aluminum air diffuser using IPA/suitable cleaning agent/disinfectant.
Stainless steel arm rest	Wipe off the stainless arm rest using IPA/suitable cleaning agent/disinfectant.
Window	Lower the glass window and clean both sides of the glass window with IPA/suitable cleaning agent/disinfectant.
Exterior	Use a damp cloth to clean the exterior surface, particularly at the front and the top to remove any accumulated dirt and dust.
UV lamp (if present)	Wipe off accumulated dirt and dust with dry cloth only.

For removing stubborn stains or spots on the stainless-steel surface, use **MEK (Methyl-Ethyl Ketone)**. In such cases, make sure that you wash the steel surface immediately afterwards with sterile water and appropriate liquid detergent. Use a polyurethane cloth or sponge for washing. Regular cleaning of the stainless-steel surface helps to retain the attractive factory-finished appearance.

**Working Safely with Biosafety and Laminar Flow Cabinet**

Work in the laboratory can be tedious and repetitive, and sometimes personnel tend to neglect the safety practices and protocols. These essential tips are part of good laboratory practices (GLP) to adhere to when working with a BSC or LFC.

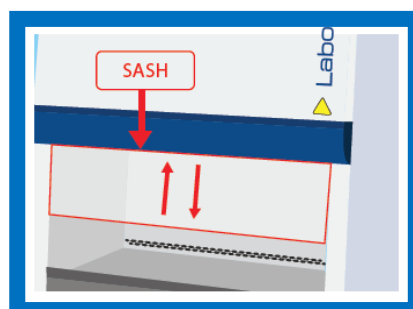
- **Do not confuse a laminar flow cabinet with biosafety cabinet.** Laminar flow cabinets can look very similar to biosafety cabinets, but they only protect samples inside the work zone from external airborne contamination. They do not protect the operator. Only biosafety cabinet has a biohazard logo. Read the label on your cabinet carefully before working.



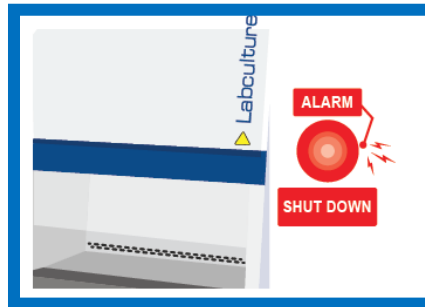
- **Allow the purge cycles.** Leave the blower on for 5 minutes before & after use to purge the work zone of any contaminants.



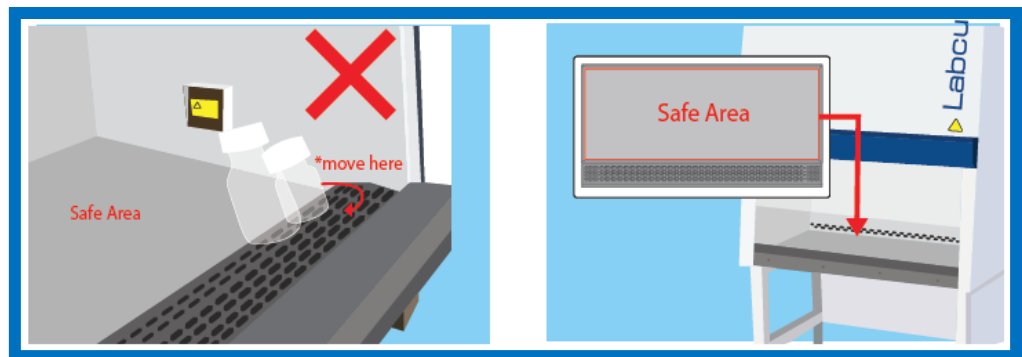
- **Observe correct sash opening.** Follow the sash indicator on the cabinet.



- **Stop using the cabinet when alarms are activated.** Call your local representative for immediate service.



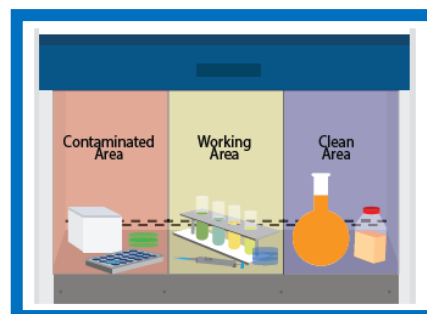
- **Do not block the grill.** Operate inside the safe working area only.



- **Do not store your stuff inside the cabinet.** Overloading the cabinet with unnecessary items can affect cabinet airflow and containment.



- **Do not mix clean/sterile with contaminated items.** Create an invisible compartment in the work zone to separate sterile and used items.

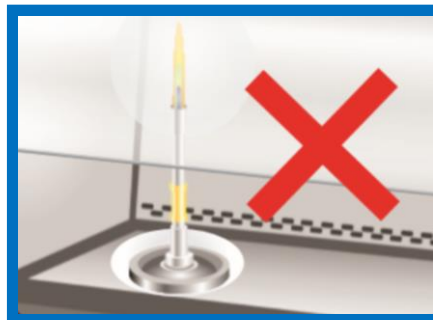




- **Identify the proper location for the cabinet.** External airflow disturbances (doors, excessive human traffic, windows, diffusers, air conditioner outlets) can compromise containment. Minimize disturbances to the airflow barrier.



- **Do not place an open flame inside the cabinet.** The resulting buoyancy effect will affect cabinet airflow and containment.



- **Wear Personal Protective Equipment (PPE) properly.** Wearing a back-fastened lab coat (to protect the operator from splashes) as well as double gloving (over the cuffs) should be practiced.



**Safety starts with you.**