



REVISED NATIONAL TB CONTROL PROGRAMME

Standard Operating Procedures for Maintenance & Servicing of Biological Safety Cabinet

CENTRAL TB DIVISION

MINISTRY OF HEALTH & FAMILY WELFARE, GOI

1. **INTRODUCTION**

Biological Safety Cabinets (Class II) afford protection for experiments (product), personnel and environment. The correct use and maintenance of Biological Safety Cabinets is important for optimal functioning.

2. **PURPOSE**

This SOP describes the maintenance and servicing requirements of the Biological Safety Cabinets.

3. **PROCEDURES:**

Servicing & Maintenance: The maintenance of internal components must only be done by trained personnel. Personal protection must be worn to perform the activity.

(i) Daily Maintenance (by Laboratory)

- (a) Perform smoke test.
- (b) Disinfect the work surface and the interior surfaces of the cabinet with 70% alcohol.
- (c) Clean the front glass door and the surface of the ultraviolet lamp.
- (d) Maintain equipment log book.

(ii) Weekly Maintenance

- (a) Clean and disinfect the exterior surfaces.

(iii) Annual Maintenance

Scheduled preventive maintenance visits are undertaken by the agency providing the AMC during which the following are checked:

- a. Integrity of pre-filters and HEPA filters
- b. Blower and exhaust system
- c. Servicing of motors
- d. Pressure gauges

BSC must be calibrated and certified annually by authorized AMC agency through trained and qualified personnel. The certification process of the biological safety cabinets is regulated by Standard NSF 49, which applies to all Class II cabinets. The certification process comprises the following:

1. **Air tightness test.**
2. **HEPA filters leak test-**
 - Minimum particulate removal of 99.99 % and determination as the lower efficiency when tested for particle size range of 0.1- 0.3 μm (type J)
 - Minimum particulate removal of 99.995 % and determination as the lower efficiency when tested for particle size range of 0.1- 0.3 μm (type K)
3. **Temperature increase test.**
4. **Noise test-** (less than or equal to 67 dbA)
5. **Luminous intensity test.**
6. **Vibrations test-** shall not exceed 2×10^{-4} in $(5 \times 10^{-6} \text{ m})$ rms amplitude at 10 Hz to 10 kHz in the center of the work surface(s).

7. **Stability test.**
8. **Vertical flow velocity test-** (within ± 5 ft/min (± 0.025 m/s) of the nominal down flow velocity set point).
9. **Inflow velocity test-** minimum 100 ft/min or 0.51 m/s; minimum inflow volume shall be 65 ft³/min).
10. **Smoke test.**
11. **Drainage escape test.**
12. **Motor/ventilator system functioning test.**
13. **Electric system test.**

Decontamination of the BSC

The decontamination of the biological safety cabinet is an activity which must be done before any maintenance work involving opening its surfaces or internal components. Whenever any of the processes indicated next are needed, decontamination of the cabinet must be done previously.

- (a) Changing of filters.
- (b) Conducting tests requiring access to the interior surfaces or exposure of the cabinet.
- (c) Before conducting certification tests when the cabinet has been used with classified agents such as level 2 or 3 biological risk agents.
- (d) Before moving the cabinet to a different location.
- (e) After a spill of a material containing high risk agents.

4. References

NSF 49 Guidelines, 2008.

Annexure: BSC maintenance log sheet

BSC Maintenance Log Sheet																															
Location:	Laboratory:												Month:								Year:										
Temp/Room/ Acceptable Range	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BSC A Visual Air Flow Check																															
BSC A Blower / Gauge Reading (5- 10)																															
BSC A Alarm Check																															
BSC A Clean																															
BSC B Visual Air Flow Check																															
BSC B Blower / Gauge Reading (5-10)																															
BSC B Alarm Check																															
Smoke test Y/N																															
BSC B Clean																															
Initials																															
Report problems, difficulties, or abnormalities concerning this equipment to the laboratory supervisor and fill out occurrence management form.																															
Comments:																															
Microbiologist Review: _____																Date: _____															