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Joint Committee on Biosafety Cabinetry

April 3, 2025

Proposed revision to NSF/ANSI: 49 – Biosafety Cabinetry: Design, Construction, Performance and Field Certification (49i200r1)

Revision 1 of NSF/ANSI 49, issue 200 is being forwarded to the Joint Committee on Biosafety Cabinetry for consideration. Please review the proposal and **submit your ballot by April 24, 2025** via the NSF Online Workspace.

Please review all ballot materials. When adding comments, please include the section number for your comment and add all comments under one comment number whenever possible. If additional space is needed, you may upload a MS Word or .PDF version of your comments directly to the NSF Online Workspace.

Purpose

The purpose of this ballot is to affirm proposed revised and new language regarding the effective cleaning and disinfecting below the BSC work zone, as described in Informative Annex 1 of Standard 49.

Background

Issue paper **FE-2025-01 – Guidance of Drain Trough Cleaning** highlighted the current ambiguity regarding the cleanability of the area under the BSC work zone.

This issue began as a Request for Interpretation regarding sealing the rear seam (see support documents), which received a number of comments during a straw poll.

Armed with this information, the BSC Task Group on Design and Construction met December 9, 2024 and discussed the challenges in great detail. In the end, the proponent volunteered to draft this issue paper for further consideration with this TG.

This issue paper language was subsequently sent to straw ballot with the TG where it yielded a **7 : 0 : 0 (Yes : No : Abstain)** vote, with no comments. The TG met once more on March 31, 2025 for final deliberations whereby the group motioned the language to JC Approval ballot.

This language is now presented here for your consideration as revision 1 approval ballot.

If you have any questions about the technical content of the ballot, you may contact me in care of:

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Chairperson, Joint Committee
c/o Allan Rose, Joint Committee Secretariat, NSF
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[Note – the recommended changes to the standard which include the current text of the relevant section(s) indicate deletions by use of ~~strikeout~~ and additions by grey highlighting. Rationale Statements are in *red italics* and only used to add clarity; these statements will NOT be in the finished publication.]

NSF/ANSI International Standard for Biosafety Cabinetry —

Biosafety Cabinetry: Design, Construction, Performance, and Field Certification

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Informative Annex 1

Biosafety cabinet selection, installation, use, lifespan, and decommissioning

The information contained in this annex is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. Therefore, this annex may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to this standard.

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I-1.7 BSC use practices and procedures

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I-1.7.6 Terminal purging and wipedown

a) Following completion of work, allow the BSC to run for a 5-min period without personnel activity to purge air in the total work area;

b) Decontamination of the interior surfaces should be repeated after removal of all materials, cultures, apparatus, etc. Check grills and diffuser grids for spilled or splashed materials that may support fungus growth in the workspace; and

c) The interior surfaces of the workspace should next be disinfected with an appropriate disinfectant for an appropriate contact time. Use of chlorine bleach in the BSC will damage the BSC stainless steel work surface. Most surface disinfectants require a specific contact time, depending upon the microbiological agents used within the BSC. Consult appropriate disinfectant documents for proper application and suitability against the material used in the BSC.

I-1.7.7 Use the following procedure to effectively clean or surface disinfect the BSC work zone surfaces:

a) Raise the sliding sash window to a full-open position.
b) Silence the audible alarm during the cleaning process.
c) Wipe all surfaces in parallel strokes from clean to dirty.

I-1.7.8 ~~**Paper catch prefilter**~~

~~Some BSCs have a paper catch filter installed behind the rear divider panel of the work zone. This area forms the return air path to the motor / blower. If the airflow is blocked, performance of the BSC can be compromised. Therefore, the paper catch should be checked and cleaned no less than weekly or daily if paper products are used for procedures. Removed paper must be properly discarded as contaminated hazardous waste.~~

I-1.7.8

Consider the following elements to effectively clean or surface disinfect below the BSC work surface containing the drain trough and sometimes the paper catch screen behind the interior rear wall of the BSC work area.

As with the BSC work area, the frequency of surface decontamination under the work surface should be determined based on evaluations of the cabinet as used. Given the lack of exposure to splashes and other materials used in the BSC work area, the appropriate frequency of cleaning and surface decontamination under the work surface may be much less including as infrequent as annually. One approach is to start with a frequency of monthly but inspect the area before cleaning and surface decontamination and note the condition. After the first quarter or year, if appropriate extend or reduce the intervals between cleaning and decontamination.

Additional care may be necessary to safely clean and surface decontaminate under the work surface. In order to access the area, the work surface must be raised. The work surface may be heavy and awkward to move. In addition to managing the work surface, the drain trough extends back farther than the interior rear wall of the cabinet and out of easy reach for many people. It may be necessary to identify cleaning tools to extend to the rear or a risk evaluation to assess cleaning and decontamination process.

Use the following procedure to effectively clean or surface disinfect the area under the BSC work zone:

a) Don appropriate PPE.
b) Raise the sliding sash window to a full-open position.
c) Silence the audible alarm during the cleaning process.
d) After cleaning or surface disinfecting the BSC work zone surfaces, raise the front of the work surface so it is at an angle with the rear edge still supported by the cabinet. For larger cabinets it may be necessary to have assistance or add a temporary support to hold the work surface at the angle needed for access.
e) Liberally spray or douse the area under the work surface with an appropriate surface decontaminant and let it sit for the required contact time for effectiveness.
f) Inspect the area for hazardous debris including broken glass, needles and other sharps. Take appropriate steps to safety remove this contaminated material.
g) After removal of hazardous debris and the contact time required for the decontaminant has elapsed, gently wipe the drain trough area. This gentle clean is intended to discover any hazardous debris that was not visible or was missed. After appropriate removal of any debris, continue to clean and disinfect the area under the work surface.
h) Inspect the drain valve. Over time debris and material may collect and block the drain valve. Inspect it to assure it is not blocked and will be functional if needed to manage and drain a spill.
i) Some BSCs have a paper catch screen installed to the rear of the area under the work surface in the return air path to the motor / blower. If the airflow is obstructed, performance of the BSC can be compromised. Therefore, the paper catch screen should be checked and obstructing material removed as appropriate. If paper products are used for procedures, the paper catch screen may require more frequent inspection. Removed paper must be properly discarded as contaminated hazardous waste.

Rationale: *Paper catch prefilter language expanded for clarity and guidance.*