Joint Committee Correspondence

TO: Joint Committee on Biosafety Cabinetry

FROM: Robert W. Powitz, Chairperson of the Joint Committee

DATE: July 22, 2022

SUBJECT: Proposed revision to NSF/ANSI 49 – *Biosafety Cabinetry: Design, Construction, Performance and Field Certification* (49i128r1)

Revision 1 of NSF/ANSI 49 issue 128 is being forwarded to the Joint Committee for balloting. Please review the changes proposed to this standard and **submit your ballot by August 12, 2022** via the NSF Online Workspace <www.standards.nsf.org>.

When adding comments, please identify the section number/name for your comment and add all comments under one comment number where possible. If you need additional space, please upload a word or pdf version of your comments online via the browse function.

Purpose

The purpose of this ballot is to affirm revised language updating The Filter Integrity Testing in Normative Annexes 1 and 5 of Standard 49.

Background

Issue paper **BSC-2018-11 – HEPA Filter Integrity Testing** highlighted several suggested updates to Normative Annexes 1 and 5. The intent of the revision is to clarify and improve the language surrounding the importance of maximizing uniformity of aerosol distribution during the testing of HEPA filters.

This issue was presented to the JC during the 2018 Face to Face meeting where it was sent to the filter integrity testing Task Group for discussion. Suggested revisions were then presented to the JC during the 2022 teleconference where it was motioned to be sent to JC approval ballot.

Public Health Impact

The proposed changes have no negative impact on public health.

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

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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 Standard for Biosafety Cabinetry —

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

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Normative Annex 1
(formerly Annex A)

Performance tests

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N-1.2 HEPA/ULPA filter leak test

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N-1.2.3.1 Filters that can be scanned

a) Turn on the cabinet blower and lights (Types A1, A2 and B2 – downflow filter test). Remove filter diffusers and protective covers if they are present. Place the generator so the aerosol is introduced into the cabinet, as specified by the manufacturer, to provide uniform distribution upstream of the HEPA/ULPA filter. ~~When the manufacturer has not identified the aerosol introduction point(s), introduce the aerosol in such a manner as to ensure thorough mixing in the cabinet airflow. For example, a T connection can be fitted to the aerosol generator output to enable distribution of challenge into both entrances of a single blower, or entrances of multiple blowers.~~ The manufacturer shall determine the aerosol introduction location and method ~~point~~ that provides the most uniform distribution (reference IEST-RP-CC-034).[1] The location of the aerosol introduction point shall be clearly described or indicated in a manner readily viewable ~~available~~ to the certifier. ~~The location should be described either on the cabinet data plate or with the electrical schematic if the schematic is affixed to the cabinet.~~

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N-1.2.3.2 Filters that cannot be scanned

~~When a cabinet is ducted so that the exhaust filter cannot be scanned, it may be leak tested by drilling a hole approximately 0.3 inch (8 mm) in diameter in the duct at a downstream location that will produce a well-mixed aerosol, and inserting the photometer sampling probe with rigid extension tubing through the hole.~~

[1] *HEPA/ULPA and ULPA Filter Leak Tests*, Institute of Environmental Sciences and Technology. 940 East Northwest Highway, Mount Prospect, IL 60056. <www.iest.org>

When an exhaust filter cannot be scanned, the manufacturer shall determine the aerosol introduction point that provides the most uniform distribution (reference IEST-RP-CC-034).[25] The location of the aerosol introduction point shall be clearly described or indicated in a manner readily viewable to the certifier. If a downstream sampling probe location is not provided by the manufacturer, a hole approximately 0.3 inch (8 mm) in diameter can be drilled in the exhaust ductwork that will produce a well-mixed aerosol. Insert the photometer sampling probe with rigid extension tubing through the hole to identify filter leaks.

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Normative Annex 5
(formerly Annex F)

Field tests

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N-5.5 HEPA/ULPA filter leak test

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N-5.5.3.1 Filters that can be scanned

a) Turn on the cabinet blower and lights (Types A1 and A2 and B2 downflow filter test). Remove the filter diffusers and protective covers if any are present. Place the generator as described by the manufacturer so the aerosol is introduced into each cabinet fan upstream of the HEPA/ULPA filter(s). When the manufacturer has not identified the aerosol introduction point(s), introduce the aerosol in a manner to ensure thorough mixing in the cabinet airflow. For example, a T-connection can be fitted to the aerosol generator output to enable distribution of challenge into both entrances of a single blower or entrances of multiple blowers. The manufacturer shall determine the aerosol introduction location and method ~~point~~ that provides the most uniform distribution. For cabinets listed prior to NSF/ANSI 49-2022, a T-connection can be fitted to the aerosol generator output to enable distribution of challenge into both entrances of a single blower, or entrances of multiple blowers.

***Rationale**: This revised language clarifies the importance creating a uniform aerosol distribution during the HEPA filter integrity testing.*