NSF International Standard /
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NSF/ANSI 49 - 2016

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



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NSF International Standard/
American National Standard
for Biosafety Cabinetry —

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Contents

Foreword[2]

The purpose of this Standard is to establish minimum requirements for materials, design, construction, and performance of Biosafety Cabinetry that are designed to protect personnel, product, and the environment. This Standard details requirements for performance testing as well as field certification testing.

This edition of the Standard (NSF/ANSI 49-2016) includes the following revisions:

Issue 45
Changes were made to Annex G covering the addition of Vaporized Hydrogen Peroxide as a decontamination agent in Biosafety Cabinetry, as well as clarifying the use of Chlorine Dioxide .

Issue 56
Language in section 6.14 was added regarding certification to IEC 61010-1 or a national standard based on it.

Issue 73
The newly designated C1 BSC was incorporated into the Standard.

Issue 76
Updated language was added referencing audible and visual alarms.

Issue 78
Metric conversions throughout the Standard were reviewed and updated.

Issue 79
Decontamination procedures in Annex G were updated.

Issue 81
This issue updated Annex E.

Issue 86
Updates were made in Annex A to the incubation time and temperature prior to the micro check.

Issue 88
Language in section 5.32 regarding cabinet height and width was removed.

Issue 90
Redundancies about sliding sash alarms in subsections 5.19.4 and 5.25.1 were removed.

Issue 96
Language involving preparation of the spore suspension of *Bacillus atrophaeus 9372* in Annex A was updated.

Issue 99
The soap bubble leak test in Annex A was revised.

This Standard was developed by the NSF Joint Committee on Biosafety Cabinetry using the consensus process described by the American National Standards Institute.

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Suggestions for improvement of this Standard are welcome. This Standard is maintained on a Continuous Maintenance schedule and can be opened for comment at any time. Comments should be sent to Chair, Joint Committee on Biosafety Cabinetry at standards@nsf.org, or c/o NSF International, Standards Department, PO Box 130140, Ann Arbor, Michigan 48113-0140, USA.

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1 General

1.1 Scope

This Standard applies to Class II (laminar flow) biosafety cabinetry designed to minimize hazards inherent in work with agents assigned to biosafety levels 1, 2, 3, or 4. It also defines the tests that shall be passed by such cabinetry to meet this Standard. This Standard includes basic requirements for the design, construction, and performance of biosafety cabinets that are intended to provide personnel, product, and environmental protection; reliable operation; durability and structural stability; cleanability; limitations on noise level; illumination; vibration; and motor/blower performance.

1.2 Minimum requirements

Cabinets qualifying under this Standard shall have passed all of the designated tests. Units with component parts covered under existing NSF standards or criteria shall conform to those applicable requirements.

1.3 Variations in design and construction

Cabinetry varying in design, construction, or installation of accessory equipment may qualify under this Standard, if appropriate tests and investigations indicate that the equipment is durable and reliable, can be cleaned and decontaminated, and performs in conformance to this Standard. Such equipment shall meet the requirements for materials and finishes in this Standard.

Major modifications require appropriate tests for conformance. Major modifications include, but are not limited to, changes in the following: location or capacity or quantity or all three of blower/motor(s); size or design or both of air plenums; position of High Efficiency Particulate Air/Ultra Low Penetrating Air (HEPA/ULPA) filters; position or redesign of work surface; work area intake and exhaust air grilles; window placement or design; access opening size; location and size of exhaust port; and built-in accessory equipment (centrifuges, ultraviolet lighting, supports for intravenous drug container, arm rests, etc.). Relocation of utility service equipment (electrical outlets, petcocks, etc.) is not considered a major modification if other provisions of this Standard are not compromised.

2 Normative references

The following documents contain requirements that, by reference in this text, constitute requirements of this Standard. At the time of publication, the indicated editions were valid. All documents are subject to revision, and parties are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below.