

NSF/ANSI 49 – 2004a

# **Class II (laminar flow) biosafety cabinetry**

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**NSF International Standard/  
American National Standard**

NSF/ANSI 49 – 2004a



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American National Standard  
for Biosafety Cabinetry –  
**Class II (laminar flow)  
biosafety cabinetry**

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## Foreword<sup>2</sup>

The purpose of this Standard is to establish minimum requirements for materials, design, construction, and performance of Class II (Laminar Flow) 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 49-04a) expands the definition of high efficiency filters (3.13) to include specifications for both high efficiency particulate air (HEPA) filters and ultra-low-penetrating air (ULPA) filters.

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

Suggestions for improvement of this Standard are welcome. Comments should be sent to Chair, Joint Committee on Biosafety Cabinetry, c/o NSF International, Standards Department, PO Box 130140, Ann Arbor, Michigan 48113-0140, USA., Standards Department, PO Box 130140, Ann Arbor, Michigan 48113-0140, USA.

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# NSF/ANSI International Standard for Biosafety Cabinetry —

## Class II (laminar flow) biosafety cabinetry

### 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 and 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 comply with 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, provided appropriate tests and investigations indicate the equipment is durable and reliable, can be cleaned and decontaminated, and performs in compliance with this Standard. Such equipment shall meet the requirements for materials and finishes in this Standard.

Major modifications require appropriate tests for compliance. 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 (HEPA) 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, which 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.

ACGIH, *Industrial Ventilation, A Manual of Recommended Practice*<sup>3</sup>

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<sup>3</sup> American Conference of Governmental Industrial Hygienists, 1330 Kemper Meadow Dr., Cincinnati, OH 45240