



*NSF International Standard /  
American National Standard*

## **NSF/ANSI 49 - 2012**

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



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**NSF International Standard/  
American National Standard  
for Biosafety Cabinetry –  
Biosafety Cabinetry: Design,  
Construction, Performance, and  
Field Certification**

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## Contents

1	General	1
1.1	Scope	1
1.2	Minimum requirements	1
1.3	Variations in design and construction	1
2	Normative references	1
3	Definitions	3
4	Materials	10
4.1	General	10
4.2	Interior work surfaces	10
4.3	Exposed interior surfaces	10
4.4	Other interior and exterior surfaces	10
4.5	Materials and finishes	10
5	Design and construction	11
5.1	General	11
5.2	Cleanability	12
5.3	Decontamination	12
5.4	Canopy connect exhaust	12
5.5	Direct connect exhaust	12
5.6	Duct and plenum design	12
5.7	Internal corners and angles	12
5.8	External corners and angles	13
5.9	Joints and seams	13
5.10	Fastening methods	13
5.11	Welds	14
5.12	Solder	14
5.13	Removable panels	14
5.14	Stability	14
5.15	Provision for mounting	14
5.16	Legs and feet	14
5.17	Reinforcing and framing	14
5.18	Fixed panels	15
5.19	Doors and covers	15
5.20	Louvers and openings	15
5.21	Tracks and guides	15
5.22	Filters	16
5.23	Gaskets and sealants	16
5.24	Stopcocks and service outlets	16
5.25	Alarms	17
5.26	Electrical components	17
5.27	Lighting	18
5.28	Gauges	18
5.29	Drain spillage trough	18
5.30	Diffuser placement	18
5.31	Work area components placement	18
5.32	Height and width	18
5.33	Data plate(s)	19

6	Performance .....	27
6.1	General .....	27
6.2	Pressure decay / soap bubble / tracer gas leak.....	27
6.3	HEPA/ULPA filter leak.....	27
6.4	Noise level.....	27
6.5	Lighting intensity .....	27
6.6	Vibration .....	27
6.7	Personnel, product, and cross-contamination protection.....	27
6.8	Stability.....	28
6.9	Downflow and inflow velocities .....	28
6.10	Inflow velocity .....	29
6.11	Airflow smoke patterns .....	29
6.12	Drain spillage trough leakage.....	30
6.13	Motor/blower performance.....	30
6.14	Electrical safety.....	30
6.15	Performance data .....	30
6.16	Record maintenance .....	30
Annex A	.....	A1
A.1	Pressure decay / soap bubble .....	A1
A.2	HEPA/ULPA filter leak test.....	A2
A.3	Noise level test.....	A4
A.4	Lighting intensity test.....	A5
A.5	Vibration test .....	A5
A.6	Personnel, product, and cross-contamination protection (biological) tests .....	A6
A.7	Stability tests .....	A12
A.8	Downflow velocity.....	A13
A.9	Inflow velocity (face velocity) test.....	A15
A.10	Airflow smoke patterns test .....	A19
A.11	Drain spillage trough leakage test .....	A20
A.12	Motor/blower performance.....	A20
Annex B	.....	B1
B.1	Method to verify fitness for use of potential direct inflow measurement devices.....	B1
Annex C	.....	C1
C.1	Selection .....	C1
C.2	Calibration .....	C1
Annex D	.....	D1
D.1	Chemical resistance.....	D1
D.2	Abrasion resistance.....	D1
Annex E	.....	E1
E.1	Biosafety consultation prior to BSC purchase .....	E1
E.2	Risk assessment procedure.....	E1
E.3	Biosafety cabinet selection .....	E3
E.4	Prior to the purchase.....	E9
E.5	Inspection.....	E11
E.6	Moving a permanently installed biosafety cabinet .....	E11
E.7	Lifespan of BSCs .....	E12
E.8	Decommissioning process .....	E12



Annex F .....	F1
F.1 Field certification preconditions and intervals .....	F1
F.2 Downflow velocity.....	F2
F.3 Inflow velocity (face velocity) test.....	F4
F.4 Airflow smoke patterns test.....	F8
F.5 HEPA/ULPA filter leak test.....	F9
F.6 Pressure decay / soap bubble .....	F11
F.7 Site installation assessment tests .....	F13
F.8 Electrical leakage and ground circuit resistance and polarity tests .....	F14
F.9 Lighting intensity test.....	F14
F.10 Vibration test.....	F14
F.11 Noise level tests.....	F15
F.12 Record of field certification .....	F16
 Annex G .....	 G1
G.1 Recommended microbiological decontamination procedure .....	G1
G.2 Recommended HEPA/ULPA filter disposal procedures.....	G8
 Annex H .....	 H1
H.1 Sheet metal and finishes.....	H1
H.2 Glass .....	H1
H.3 HEPA/ULPA filter gasket materials.....	H1
H.4 HEPA/ULPA filter case – Type IC.....	H2
H.5 Specifications .....	H2
H.6 Sealants .....	H2
H.7 Fans .....	H2
H.8 Components and wiring .....	H2
 Annex I .....	 I1
I.1 Miscellaneous publications .....	I1
I.2 Federal specifications.....	I2
I.3 Federal standards .....	I3
I.4 Military specifications .....	I3
 Annex J .....	 J1
J.1 Helium leak test.....	J1
J.2 Sulfur hexafluoride (SF <sub>6</sub> ) leak test .....	J2
 Annex K .....	 K1
K.1 Introduction .....	K1
K.2 Protocol .....	K1

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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 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 49-2012) includes the following revisions:

### **Issue 44 - Cabinets Less Than 3 Feet**

Updates the language in the Standard to include a test method for biosafety cabinets with an interior sidewall dimension of three feet or less.

### **Issue 46 - Direct Inflow Measurement (DIM) and Exhaust Clearance**

Updates the Standard to include a reference to non-back-pressure compensated readings used in a Direct Inflow Measurement (DIM) in Annex A, Annex B, and Annex F. Also updates the language in Annex A, Annex E, and Annex F for the 12 in (30 cm) clearance requirement used for measuring an exhaust HEPA filter.

### **General editorial corrections in various sections**

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.

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# NSF/ANSI International Standard for Biosafety Cabinetry —

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

### 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.

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 <www.acgih.org>.