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Sterilization of health care products - Biological indicators - Guidance for the selection, use and interpretation of results (ISO 14161:2009)

I.S. EN ISO 14161:2009

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English Version

**Sterilization of health care products - Biological indicators -
Guidance for the selection, use and interpretation of results (ISO
14161:2009)**

Stérilisation des produits de santé - Indicateurs biologiques
- Directives générales pour la sélection, l'utilisation et
l'interprétation des résultats (ISO 14161:2009)

Sterilisation von Produkten für die Gesundheitsfürsorge -
Biologische Indikatoren - Leitfaden für die Auswahl,
Verwendung und Interpretation von Ergebnissen (ISO
14161:2009)

This European Standard was approved by CEN on 31 July 2009.

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Contents

Page

Foreword.....3

Foreword

This document (EN ISO 14161:2009) has been prepared by Technical Committee ISO/TC 198 "Sterilization of health care products" in collaboration with Technical Committee CEN/TC 102 "Sterilizers for medical purposes" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2010, and conflicting national standards shall be withdrawn at the latest by March 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 14161:2000.

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Endorsement notice

The text of ISO 14161:2009 has been approved by CEN as a EN ISO 14161:2009 without any modification.

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I.S. EN ISO 14161:2009
**INTERNATIONAL
STANDARD**

**ISO
14161**

Second edition
2009-09-15

**Sterilization of health care products —
Biological indicators — Guidance for the
selection, use and interpretation of
results**

*Stérilisation des produits de santé — Indicateurs biologiques —
Directives générales pour la sélection, l'utilisation et l'interprétation des
résultats*



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Contents

Page

Foreword	v
Introduction.....	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 General	5
5 Characteristics of biological indicators	7
5.1 General	7
5.2 Test organism suspension for direct inoculation of products	7
5.3 Inoculated carriers	8
5.4 Self-contained biological indicators.....	8
5.5 Other biological indicators	9
6 Selection of supplier	9
6.1 General	9
6.2 Documentation	10
7 Biological indicators in process development.....	11
7.1 General	11
7.2 Overkill approach	12
7.3 Combined biological indicator and bioburden method.....	12
7.4 Bioburden method.....	13
8 Biological indicators in sterilization validation.....	14
8.1 General	14
8.2 Placement and handling of biological indicators	14
8.3 Sterilizer qualification	14
8.4 Performance qualification	14
8.5 Review and approval of validation	15
8.6 Requalification.....	15
9 Biological indicators in routine monitoring.....	15
9.1 General	15
9.2 Placement and handling of biological indicators	15
9.3 Process challenge device (PCD).....	16
10 Results.....	16
10.1 General	16
10.2 Interpretation of results	16
11 Application of biological indicator standards	17
11.1 General assessment of biological indicator performance by the user.....	17
11.2 Nominal population of test organism.....	17
11.3 Resistance determination.....	18
11.4 <i>z</i> value determination	20
11.5 $F_{(T, z)}$ equivalent sterilization value determination	22
11.6 Establishing spore-log-reduction (SLR)	23
11.7 Sterility assurance level (SAL) calculation	23
11.8 Test equipment	24
12 Culture conditions	24
12.1 General	24
12.2 Incubation temperature.....	24

ISO 14161:2009(E)

12.3	Incubation period.....	25
12.4	Choice of growth medium.....	25
13	Third-party requirements	26
13.1	General.....	26
13.2	Minimum requirements for replicates and total number of biological indicators	26
13.3	Test equipment	26
14	Personnel training	27
15	Storage and handling	27
16	Disposal of biological indicators	27
Annex A	(informative) Microbiological inactivation kinetics and enumeration techniques.....	28
Annex B	(informative) Process challenge devices	34
Annex C	(informative) Formulae for fraction negative methods for <i>D</i> value calculations	35
Annex D	(informative) Examples of documentation for biological indicators prepared by the user	50
Annex E	(informative) Calculation of <i>z</i> value	54
Annex F	(informative) <i>D</i> value determination by survivor curve method.....	57
Annex G	(informative) Survival-kill response characteristics	61
Bibliography	62

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 14161 was prepared by Technical Committee ISO/TC 198, *Sterilization of health care products*.

This second edition cancels and replaces the first edition (ISO 14161:2000), which has been technically revised.

Introduction

This International Standard provides guidance regarding the selection, use and interpretation of results of biological indicators when used to develop, validate and monitor sterilization processes. The procedures described in this International Standard are of a general nature and do not, of themselves, constitute a comprehensive development, validation or monitoring programme with regard to the sterilization of health care products. The intent of this International Standard is not to mandate the use of biological indicators in a process but, if they are used, to provide guidance for their proper selection and use in order to obviate misleading results.

In this International Standard, users will find guidance on selection of the correct biological indicator for their particular sterilization process and critical parameters as well as guidance on its appropriate use.

The user should select a biological indicator that is appropriate for the particular process to be used. There is a wide variety of sterilization processes in common use, and biological indicator manufacturers are not able to foresee all possible uses of their product. Manufacturers, therefore, label biological indicators according to their intended use. It is the responsibility of the users of biological indicators to select, use, recover and interpret the results as appropriate for the particular sterilization process used.

The certified performance of a biological indicator can be adversely affected by the conditions of storage and transport prior to its use, by the use of the biological indicator or by the sterilizer process parameters. In addition, the incubation procedure used after exposure to the process, including outgrowth temperature and culture medium type, supplier and specific lot, can affect measured resistance as a function of recovery and growth. For these reasons, the recommendations of the biological indicator manufacturer for storage and use should be followed. After exposure, biological indicators should be aseptically transferred (if applicable) and incubated as specified by the biological indicator manufacturer.

It should be noted that biological indicators are not intended to indicate that the products in the load being sterilized are sterile. Biological indicators are utilized to test the effectiveness of a given sterilization process and the equipment used, by assessing microbial lethality according to the concept of sterility assurance level. Suitably trained personnel should conduct these studies.

Sterilization of health care products — Biological indicators — Guidance for the selection, use and interpretation of results

1 Scope

This International Standard provides guidance for the selection, use and interpretation of results from application of biological indicators when used in the development, validation and routine monitoring of sterilization processes. This International Standard applies to biological indicators for which International Standards exist.

NOTE 1 See, for example, the ISO 11138 series.

NOTE 2 The general information provided in this International Standard can have useful application for processes and biological indicators not currently addressed by existing International Standards, e.g., new and developing sterilization processes.

This International Standard does not consider those processes that rely solely on physical removal of microorganisms, e.g., filtration.

This International Standard is not intended to apply to combination processes using, for example, washer disinfectors or flushing and steaming of pipelines.

This International Standard is not intended to apply to liquid sterilization processes.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11135-1, *Sterilization of health care products — Ethylene oxide — Part 1: Requirements for development, validation and routine control of a sterilization process for medical devices*

ISO 11138-1:2006, *Sterilization of health care products — Biological indicators — Part 1: General requirements*

ISO 11138-2, *Sterilization of health care products — Biological indicators — Part 2: Biological indicators for ethylene oxide sterilization processes*

ISO 11138-3, *Sterilization of health care products — Biological indicators — Part 3: Biological indicators for moist heat sterilization processes*

ISO 11138-4, *Sterilization of health care products — Biological indicators — Part 4: Biological indicators for dry heat sterilization processes*

ISO 11138-5, *Sterilization of health care products — Biological indicators — Part 5: Biological indicators for low-temperature steam and formaldehyde sterilization processes*

ISO 11737-1, *Sterilization of medical devices — Microbiological methods — Part 1: Determination of a population of microorganisms on products*

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