



# SLOVENSKI STANDARD SIST EN ISO 13408-1:2011

01-oktober-2011

Nadomešča:  
SIST EN 13824:2005

---

**Aseptična proizvodnja izdelkov za zdravstveno nego - 1. del: Splošne zahteve (ISO 13408-1:2008)**

Aseptic processing of health care products - Part 1: General requirements (ISO 13408-1:2008)

Aseptische Herstellung von Produkten für die Gesundheitsfürsorge - Teil 1: Allgemeine Anforderungen (ISO 13408-1:2008)

Traitement aseptique des produits de santé - Partie 1: Exigences générales (ISO 13408-1:2008)

<https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011>

**Ta slovenski standard je istoveten z: EN ISO 13408-1:2011**

---

**ICS:**

11.080.01	Sterilizacija in dezinfekcija na splošno	Sterilization and disinfection in general
-----------	--	---

**SIST EN ISO 13408-1:2011**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 13408-1:2011](#)

<https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 13408-1**

June 2011

ICS 11.080.01

Supersedes EN 13824:2004

English Version

## Aseptic processing of health care products - Part 1: General requirements (ISO 13408-1:2008)

Traitement aseptique des produits de santé - Partie 1:  
Exigences générales (ISO 13408-1:2008)

Aseptische Herstellung von Produkten für die  
Gesundheitsfürsorge - Teil 1: Allgemeine Anforderungen  
(ISO 13408-1:2008)

This European Standard was approved by CEN on 10 June 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

[SIST EN ISO 13408-1:2011](https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

**Contents**

Page

<b>Foreword</b> .....	<b>3</b>
<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 90/385/EEC on Active Implantable Medical Devices</b> .....	<b>4</b>
<b>Annex ZB (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 93/42/EEC on Medical Devices</b> .....	<b>5</b>
<b>Annex ZC (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/79/EC on <i>in vitro</i> diagnostic medical devices</b> .....	<b>6</b>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 13408-1:2011](https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011>

## Foreword

The text of ISO 13408-1:2008 has been prepared by Technical Committee ISO/TC 198 “Sterilization of health care products” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 13408-1:2011 by Technical Committee CEN/TC 204 “Sterilization of medical devices” the secretariat of which is held by BSI.

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 December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

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 13824:2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directives.

For relationship with EU Directives, see informative Annexes ZA, ZB, or ZC, which are integral parts of this document.

**iTeh STANDARD PREVIEW**

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

### Endorsement notice

The text of ISO 13408-1:2008 has been approved by CEN as a EN ISO 13408-1:2011 without any modification.

## Annex ZA (informative)

### Relationship between this European Standard and the Essential Requirements of EU Directive 90/385/EEC on Active Implantable Medical Devices

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 90/385/EEC on active implantable medical devices.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**Table ZA.1 — Correspondence between this European Standard and Directive 90/385/EEC**

Clauses of this EN	Essential Requirements (ERs) of Directive 90/385/EEC	Qualifying remarks/Notes
4,5,6,7,8,9,10,11,12	7	This relevant Essential Requirement is only partly addressed in this European Standard

**WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this Standard.**

## Annex ZB (informative)

### Relationship between this European Standard and the Essential Requirements of EU Directive 93/42/EEC on Medical Devices

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 93/42/EEC on medical devices.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in Table ZB.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**Table ZB.1 — Correspondence between this European Standard and Directive 93/42/EEC**

Clauses of this EN	Essential Requirements (ERs) of Directive 93/42/EEC	Qualifying remarks/Notes
4,5,6,7,8,9,10,11,12	8.3	This relevant Essential Requirement is only partly addressed in this European Standard
4,5,6,7,8,9,10,11,12	8.4	

SIST EN ISO 13408-1:2011  
<http://standards.iteh.ai/catalog/standards/sist/a70620c6-74d0-42c4-9aab-7026ef90a432/sist-en-iso-13408-1-2011>

**WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this Standard.**

## Annex ZC (informative)

### Relationship between this European Standard and the Essential Requirements of EU Directive 98/79/EC on *in vitro* diagnostic medical devices

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 98/79/EC on *in vitro* diagnostic medical devices.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in Table ZC.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**Table ZC.1 — Correspondence between this European Standard and Directive 98/79/EC**

Clauses of this EN	Essential Requirements (ERs) of Directive 98/79/EC	Qualifying remarks/Notes
4,5,6,7,8,9,10,11,12	B.2.3	This relevant Essential Requirement is only partly addressed in this European Standard
4,5,6,7,8,9,10,11,12	B.2.4	

[SIST EN ISO 13408-1:2011](https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-70e941100000/iso-13408-1-2011)

[https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-](https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-70e941100000/iso-13408-1-2011)

**WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this Standard.**



# INTERNATIONAL STANDARD

**ISO**  
**13408-1**

Second edition  
2008-06-15

---

---

## Aseptic processing of health care products —

### Part 1: General requirements

*Traitement aseptique des produits de santé —*

*Partie 1: Exigences générales*

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 13408-1:2011](https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011>



Reference number  
ISO 13408-1:2008(E)

© ISO 2008

**ISO 13408-1:2008(E)****PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 13408-1:2011](https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011>

**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

Page

Foreword.....	v
Introduction .....	vi
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions.....	2
4 Quality system elements.....	7
4.1 General.....	7
4.2 Assignment of responsibilities .....	7
4.3 Calibration .....	7
5 Aseptic process definition.....	8
5.1 General.....	8
5.2 Risk management .....	8
6 Manufacturing environment .....	10
6.1 General.....	10
6.2 Manufacturing environment design .....	11
6.3 Layout .....	12
6.4 Material and personnel flow .....	14
6.5 HVAC system .....	15
6.6 Cleanroom qualification .....	17
6.7 Utility services and ancillary equipment .....	17
6.8 Environmental and personnel monitoring programmes .....	17
7 Equipment .....	21
7.1 Qualification .....	21
7.2 Maintenance of equipment .....	23
8 Personnel.....	23
8.1 General.....	23
8.2 Training for APA qualification .....	24
8.3 Gowning procedures .....	25
8.4 General employee health .....	26
9 Manufacture of the product .....	27
9.1 Attainment and maintenance of sterility .....	27
9.2 Duration of the manufacturing process .....	27
9.3 Aseptic manufacturing procedures .....	28
9.4 Cleaning and disinfection of facilities .....	28
9.5 Cleaning, disinfection and sterilization of equipment .....	30
10 Process simulation .....	31
10.1 General.....	31
10.2 Media selection and growth support .....	32
10.3 Simulation procedures .....	32
10.4 Incubation and inspection of media filled units .....	33
10.5 Initial performance qualification .....	33
10.6 Periodic performance requalification .....	34
10.7 Repeat of initial performance qualification .....	35
10.8 Documentation of process simulations .....	35
10.9 Disposition of filled product .....	36
11 Test for sterility .....	37

## ISO 13408-1:2008(E)

<b>11.1</b>	<b>General</b> .....	<b>37</b>
<b>11.2</b>	<b>Investigation of positive units from tests for sterility</b> .....	<b>37</b>
<b>Annex A</b> (informative)	<b>Example of a flow chart</b> .....	<b>38</b>
<b>Annex B</b> (informative)	<b>Typical elements of an aseptic process definition</b> .....	<b>39</b>
<b>Annex C</b> (informative)	<b>Examples of specific risks</b> .....	<b>40</b>
<b>Annex D</b> (informative)	<b>Comparison of classification of cleanrooms</b> .....	<b>41</b>
<b>Annex E</b> (informative)	<b>Specification for water used in the process</b> .....	<b>42</b>
<b>Annex F</b> (informative)	<b>Aseptic processing area</b> .....	<b>44</b>
<b>Bibliography</b>	.....	<b>45</b>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 13408-1:2011](https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011>

## 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 13408-1 was prepared by Technical Committee ISO/TC 198, *Sterilization of health care products*.

This second edition cancels and replaces the first edition (ISO 13408-1:1998), which has been technically revised. Any normative and informative clauses on subjects which have meanwhile been addressed in Part 2 to Part 6 of ISO 13408 have been removed from this part.

ISO 13408 consists of the following parts, under the general title *Aseptic processing of health care products*:

- *Part 1: General requirements*
- *Part 2: Filtration*
- *Part 3: Lyophilization*
- *Part 4: Clean-in-place technologies*
- *Part 5: Sterilization in place*
- *Part 6: Isolator systems*

## ISO 13408-1:2008(E)

## Introduction

Health care products that are labelled “sterile” are prepared using appropriate and validated methods under stringent control as part of a quality management system. For pharmaceuticals and medical devices there might be various requirements including compliance with ISO standards, GMP regulations and pharmacopoeial requirements.

Wherever possible, healthcare products intended to be sterile should be sterilized in their final sealed container (terminal sterilization). ISO/TC 198 has prepared standards for terminal sterilization of health care products by irradiation (series ISO 11137), by moist heat (ISO 17665-1), by dry heat (ISO 20857, in preparation) and by ethylene oxide (ISO 11135-1).

When a health care product is intended to be sterile and cannot be terminally sterilized, aseptic processing provides an alternative. Presterilization of product, product parts and/or components and all equipment coming into direct contact with the aseptically-processed product is required. Aseptic processing intends to maintain the sterility of the pre-sterilized components and products during assembling. The resulting product is required to be sterile in its final container. Aseptic processing can also be used to prevent contamination of biological product or biological systems (e.g. tissues, vaccines).

While terminal sterilization involves the control of a well-defined process of known lethality delivered to the product and a sterility assurance level (SAL) can be extrapolated from sterilization data, this is not applicable to aseptic processing.

Examples of applications in which aseptic processing are used include:

- aseptic handling and filling of solutions, suspensions, semisolids and powders;
- aseptic handling, transfer and packaging of solid products including solid medical devices;
- aseptic handling, transfer and packaging of combination products;
- aseptic handling of tissues or biological production systems.

Sterilization procedures which render components and/or parts sterile as a prerequisite for further aseptic processing can be treated as separate procedures. They have to be evaluated and validated separately and it is important that their risk of failure is minimal. The aseptic process definition encompasses all production steps following the sterilization of product and components until the final container or package is sealed. To keep the aseptic process definition clear and workable, this part of ISO 13408 is focused on the risks to the maintenance of sterility.

It is important to control all possible sources of contamination in order to maintain the sterility of each and every component. To achieve this, a risk-based aseptic process definition is established encompassing each product and applied in a comprehensive way considering product, package design, environment and manufacturing process designs. The product is processed in a controlled environment where microbial and particulate levels are maintained at defined minimal levels and where human intervention is minimized. Validated systems, adequately trained personnel, controlled environments and well-documented systematic processes are applied to assure a sterile finished product.

The aseptic process is divided into unit operations (e.g. sterilization of product or components including sterile filtration, assembly of components, handling and storage of sterilized product) and it is necessary that potential sources of contamination from materials, components, product, personnel, facility, equipment and utilities such as water systems be considered and minimized. Only if all risks of contamination have been recognised, wherever possible minimized, eliminated or controlled and finally have been evaluated as

acceptable, can the controls on the aseptic process be considered to be acceptable. Appropriate validation of the specified elements of the aseptic process is needed, of which process simulation studies are an essential.

This revision of ISO 13408-1:1998 is intended to adopt this International Standard to the actual state of technology in the field.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 13408-1:2011](https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/a76828c8-54d6-42c4-9aa8-7b26ef90a432/sist-en-iso-13408-1-2011>