



# SLOVENSKI STANDARD

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Biological evaluation of medical devices - Part 18: Chemical characterization of materials  
(ISO 10993-18:2005)

Biologische Beurteilung von Medizinprodukten - Teil 18: Chemische Charakterisierung  
von Werkstoffen (ISO 10993-18:2005)

Evaluation biologique des dispositifs médicaux - Partie 18 : Caractérisation chimique des  
matériaux (ISO 10993-18:2005)

Ta slovenski standard je istoveten z: EN ISO 10993-18:2009

### ICS:

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 10993-18**

April 2009

ICS 11.100.20

Supersedes EN ISO 10993-18:2005

English Version

**Biological evaluation of medical devices - Part 18: Chemical  
characterization of materials (ISO 10993-18:2005)**

Évaluation biologique des dispositifs médicaux - Partie 18:  
Caractérisation chimique des matériaux (ISO 10993-  
18:2005)

Biologische Beurteilung von Medizinprodukten - Teil 18:  
Chemische Charakterisierung von Werkstoffen (ISO 10993-  
18:2005)

This European Standard was approved by CEN on 12 April 2009.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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.

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

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## Contents

Page

Foreword.....	3
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 93/42/EEC on Medical Devices .....	4
Annex ZB (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 90/385/EEC on Active Implantable Medical Devices .....	5

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## Foreword

The text of ISO 10993-18:2005 has been prepared by Technical Committee ISO/TC 194 "Biological evaluation of medical devices" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10993-18:2009 by Technical Committee CEN/TC 206 "Biological evaluation of medical devices" the secretariat of which is held by NEN.

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 October 2009, 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 10993-18:2005.

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 93/42/EEC on Medical Devices and 90/385/EEC on Active Implantable Medical Devices.

For relationship with the EU Directives, see informative Annexes ZA and ZB, which is an integral part of this document.

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, 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 10993-18:2005 has been approved by CEN as a EN ISO 10993-18:2009 without any modification.

## Annex ZA (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 Communities 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 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 — Correspondence between this European Standard and Directive 93/42/EEC on medical devices**

Clause(s)/sub-clause(s) of this EN	Essential Requirements (ERs) of Directive 93/42/EEC	Qualifying remarks/Notes
5, 6, 7, 8 & Annex A	Annex I: 7.1, 7.2, 7.5	

**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 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 Communities 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 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 — Correspondence between this European Standard and Directive 90/385/EEC on active implantable medical devices**

Clause(s)/sub-clause(s) of this EN	Essential Requirements (ERs) of Directive 90/385/EEC	Qualifying remarks/Notes
5, 6, 7, 8, & Annex A	Annex I 9	

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# INTERNATIONAL STANDARD

**ISO**  
**10993-18**

First edition  
2005-07-01

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## Biological evaluation of medical devices —

### Part 18: Chemical characterization of materials

*Évaluation biologique des dispositifs médicaux —  
Partie 18: Caractérisation chimique des matériaux*  
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Reference number  
ISO 10993-18:2005(E)

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Published in Switzerland

# Contents

Page

Foreword.....	iv
Introduction .....	vi
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions.....	2
4 Symbols and abbreviated terms .....	3
5 General principles.....	3
6 Characterization procedure .....	4
6.1 General.....	4
6.2 Step 1 — Qualitative information .....	5
6.3 Step 2 — Material equivalence .....	5
6.4 Step 3 — Quantitative information.....	5
6.5 Step 4 — Quantitative risk assessment.....	5
6.6 Step 5 — Estimated clinical exposure to chemicals present.....	6
7 Chemical characterization parameters and methods.....	6
7.1 General.....	6
7.2 Polymers.....	7
7.3 Metals and alloys .....	8
7.4 Ceramics.....	8
7.5 Natural macromolecules.....	9
8 Reporting of data obtained.....	10
Annex A (normative) Flowchart summarizing the stepwise generation of chemical characterization data for use in toxicological risk assessment .....	11
Annex B (informative) Information sources for chemical characterization .....	13
Annex C (informative) Principles for judging toxicological equivalency .....	16
Bibliography .....	17

## ISO 10993-18:2005(E)

## 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 10993-18 was prepared by Technical Committee ISO/TC 194, *Biological evaluation of medical devices*.

ISO 10993 consists of the following parts, under the general title *Biological evaluation of medical devices*:

- *Part 1: Evaluation and testing*
- *Part 2: Animal welfare requirements*
- *Part 3: Tests for genotoxicity, carcinogenicity and reproductive toxicity*
- *Part 4: Selection of tests for interactions with blood*
- *Part 5: Tests for in vitro cytotoxicity*
- *Part 6: Tests for local effects after implantation*
- *Part 7: Ethylene oxide sterilization residuals*
- *Part 9: Framework for identification and quantification of potential degradation products*
- *Part 10: Tests for irritation and delayed-type hypersensitivity*
- *Part 11: Tests for systemic toxicity*
- *Part 12: Sample preparation and reference materials*
- *Part 13: Identification and quantification of degradation products from polymeric medical devices*
- *Part 14: Identification and quantification of degradation products from ceramics*
- *Part 15: Identification and quantification of degradation products from metals and alloys*
- *Part 16: Toxicokinetic study design for degradation products and leachables*
- *Part 17: Establishment of allowable limits for leachable substances*