SLOVENSKI STANDARD
SIST EN ISO 10993-11:2000

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Biologķko ovrednotenje medicinskih pripomoļ kov - 11. del: Preskusi sistemske toksiļ nosti (ISO 10993-11:1993)

Biological evaluation of medical devices - Part 11: Tests for systemic toxicity (ISO 10993-11:1993)

Biologische Beurteilung von Medizinprodukten - Teil 11: Prüfungen auf systemische Toxizität (ISO 10993-11:1993)

Evaluation biologique des dispositifs médicaux - Partie 11: Essais de toxicité systémique (ISO 10993-11:1993)

Ta slovenski standard je istoveten z: **EN ISO 10993-11:1995**

ICS:

11.100.20	Biologķko ovrednotenje medicinskih pripomoļ kov	Biological evaluation of medical devices

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Biological evaluation of medical devices - Part 11: Tests for systemic toxicity (ISO 10993-11:1993)

Evaluation biologique des dispositifs médicaux - Partie 11: Essais de toxicité systémique (ISO 10993-11:1993)

Biologische Beurteilung von Medizinprodukten - Teil 11: Prüfungen auf systemische Toxizität (ISO 10993-11:1993)

This European Standard was approved by CEN on 1994-12-17. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Foreword

The text of the International Standard from ISO/TC 194 "Biological evaluation of medical devices" of the International Standardization Organization (ISO) has been taken over as a European Standard by the Technical Committee CEN/TC 206 "Biocompatibility of medical and dental materials and devices".

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

Part 1:	Guidance on selection of tests
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 cytotoxicity: *in vitro* methods
Part 6:	Tests for local effects after implantation
Part 7:	Ethylene oxide sterilization residuals
Part 9:	Degradation of materials related to biological testing
Part 10:	Tests for irritation and sensitization
Part 11:	Tests for systemic toxicity
Part 12:	Sample preparation and reference materials
Part 13:	Identification and quantification of degradation products from polymers
Part 14:	Identification and quantification of degradation products from ceramics
Part 15:	Identification and quantification of degradation products from coated and uncoated metals and alloys
Part 16:	General guidance on toxicokinetic study design for degradation products and leachables
Part 17:	Glutaraldehyde and formaldehyde residues in industrially sterilized medical devices

Future parts will deal with other relevant aspects of biological testing.

Annex A of this part of ISO 10993 is for information only.

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 May 1996, and conflicting national standards shall be withdrawn at the latest by May 1996.

This European Standard 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 Directive(s).

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO 10993-11:1993 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standars are listed in annex ZA (normative).

Annex ZA (normative)

Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

Publication	Year	Title	EN/HD	Year
ISO 10993-1	1992	Biological evaluation of medical devices - Part 1: Guidance of selection of tests.	EN 30993-1	1994
ISO 10993-3	1992	Biological evaluation of medical devices - Part 3: Tests for genotoxicity, carcinogenicity and reproductive toxicity	EN 30993-3	1993

INTERNATIONAL STANDARD

ISO 10993-11

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Biological evaluation of medical devices —

Part 11:
Tests for systemic toxicity

Évaluation biologique des dispositifs médicaux —

Partie 11: Essais de toxicité systémique

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Contents

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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.

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.

International Standard ISO 10993-11 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: Guidance on selection of tests*

— *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 cytotoxicity: in vitro methods*

— *Part 6: Tests for local effects after implantation*

— *Part 7: Ethylene oxide sterilization residuals*

— *Part 8: Clinical investigation*

— *Part 9: Degradation of materials related to biological testing* [Technical Report]

— *Part 10: Tests for irritation and sensitization*

— *Part 11: Tests for systemic toxicity*

— *Part 12: Sample preparation and reference materials*

— *Part 13: Identification and quantification of degradation products from polymers*

— *Part 14: Identification and quantification of degradation products from ceramics*

— *Part 15: Identification and quantification of degradation products from coated and uncoated metals and alloys*

— *Part 16: General guidance on toxicokinetic study design for degradation products and leachables from medical devices*

— *Part 17: Glutaraldehyde and formaldehyde residues*

Future parts will deal with other relevant aspects of biological testing.

Annex A of this part of ISO 10993 is for information only.

Introduction

When a device releases constituents into the body, the constituents may, in sufficiently large concentrations, lead to systemic toxicity. Clinical and experimental evidence of the systemic effects in this area is extremely sparse.

This part of ISO 10993 provides methodologies for the evaluation of the systemic toxicity potential of medical devices. In addition, it includes pyrogenicity testing.

Systemic toxicity is a developing experimental science and it is expected that each expert, in carrying out tests, will exercise judgement in the selection of a procedure from the lists of standards and documents quoted, thereby ensuring that the document that will best suit the needs of a particular device is chosen. It is assumed that, in selecting the most appropriate test method from the list, the individual method(s) may have to be adapted, to evaluate the device under test more appropriately.

It must be borne in mind that subchronic and/or chronic systemic toxicity testing is not always necessary for a risk assessment. Such assessment might be made on the basis of qualitative and quantitative analytical measurements to evaluate the exposure of possible leachables from the device.

This adaptation is intentional because of the developing nature of the science and because excessive rigidity or over-detailed specifications of methods could prevent application of more appropriate test methods. It is indeed intended that toxicological skill and judgement be applied during the course of study. However, it is equally necessary that, where changes from proposed methodologies are implemented, the rationale should be fully explained and supported scientifically. (See 6.4.)

It is essential, when evaluating the results of toxicological tests, to bear in mind the limitations and the potential variability of the tests. Similarly, it may not always be appropriate to extrapolate from animal studies to the human situation. While *in vivo* testing is designed to indicate possible health hazards, it does not eliminate the need for continuing monitoring and observation in humans.