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**Implants for surgery —
Hydroxyapatite —**

**Part 6:
Powders**

*Implants chirurgicaux — Hydroxyapatite —
Partie 6: Poudres*



Reference number
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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Requirements	3
4.1 General.....	3
4.2 Calcium to phosphorus molar ratio (Ca/P).....	3
4.3 Trace elements.....	3
4.4 Qualitative and quantitative determination of foreign phases.....	4
4.5 Powder morphology.....	5
4.6 Granulometry.....	5
4.7 Calcination loss.....	5
5 Manufacturing design requirement	5
6 Certificate of compliance	5
Annex A (informative) Other possible characterization tests	7
Bibliography	9

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

The committee responsible for this document is ISO/TC 150, *Implants for surgery*, Subcommittee SC 1, *Materials*.

ISO 13779 consists of the following parts, under the general title *Implants for surgery — Hydroxyapatite*:

- *Part 1: Ceramic hydroxyapatite*
- *Part 2: Coatings of hydroxyapatite*
- *Part 3: Chemical analysis and characterization of crystallinity and phase purity*
- *Part 4: Determination of coating adhesion strength*
- *Part 6: Powders*

This corrected version of ISO 13779-6:2016 incorporates the following change:

- In A.8, the last line of formula for the value ka_1 has been corrected and added.

Introduction

No known surgical implant material has ever been shown to be completely free of adverse reactions in the human body. However, long term clinical experience of the use of the material referred to in this part of ISO 13779 has shown that an acceptable level of biological response can be expected, if the material is used in appropriate applications.

This part of ISO 13779 describes specifications for hydroxyapatite raw material powders used to obtain high-quality medical devices. However, the quality of the final device depends on the manufacturing process and it is recognized that a separate performance standard can be necessary for each end-use product.

Implants for surgery — Hydroxyapatite —

Part 6: Powders

1 Scope

This part of ISO 13779 specifies requirements for hydroxyapatite powders used as a raw material for the manufacturing of surgical implants or coating of surgical implants.

This part of ISO 13779 does not apply to hydroxyapatite coatings, ceramic hydroxyapatite, glass ceramics, α - and β -tricalcium phosphate, or other forms of calcium phosphate.

2 Normative references

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

ISO 2591-1, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

ISO 13779-3, *Implants for surgery — Hydroxyapatite — Part 3: Chemical analysis and characterization of crystallinity and phase purity*

ISO 14971, *Medical devices — Application of risk management to medical devices*

ISO 24235, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Determination of particle size distribution of ceramic powders by laser diffraction method*

European Pharmacopoeia 5.0: Tribasic calcium phosphate

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

atomisation

<spray drying> process for producing more or less spherical agglomerates of powder particles (atomized powders) by spraying a suspension of particles followed by immediate drying

3.2

α tricalcium phosphate

α -TCP

chemical compound with a crystallographic structure characterized by ICDD PDF 09-0348 (see Bibliography)

Note 1 to entry: The chemical formula is $\text{Ca}_3(\text{PO}_4)_2$.

Note 2 to entry: International Centre for Diffraction Data Powder Diffraction File (ICDD PDF).