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Dentistry - Refractory investment and die material (ISO 15912:2016)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/16

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**Dentistry - Refractory investment and die material (ISO  
15912:2016)**Médecine bucco-dentaire - Revêtements et matériaux  
pour modèles réfractaires (ISO 15912:2016)Zahnheilkunde - Hochtemperaturbeständige  
Einbettmassen und Stumpfmaterialeien (ISO  
15912:2016)

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## **European foreword**

This document (EN ISO 15912:2016) has been prepared by Technical Committee ISO/TC 106 “Dentistry” in collaboration with Technical Committee CEN/TC 55 “Dentistry” 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of an identical text or by endorsement, at the latest by August 2016, and conflicting national standards shall be withdrawn at the latest by August 2016.

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.

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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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Endorsement notice**

The text of ISO 15912:2016 has been approved by CEN as EN ISO 15912:2016 without any modification.

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## **Dentistry — Refractory investment and die material**

*Médecine bucco-dentaire — Revêtements et matériaux pour  
modèles réfractaires*





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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.

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](http://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](http://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 106 *Dentistry*, Subcommittee SC2, *Prosthetic Materials*.

This second edition cancels and replaces the first edition (ISO 15912:2006), which has been technically revised. It also incorporates the Amendment ISO 15912-1:2006/Amd 1:2011.

In this edition, dental pressable-ceramic investment materials are included in the Scope for the first time. These products are intended for the production of ceramic crowns and inlays and, as such, the same requirements as those for an investment product intended for the production of metallic crowns and inlays by casting are relevant (Type 1, according to the classification in this standard).

The previous edition contained requirements and test methods that had been developed for discontinued composition specific standards. In recent years products have been introduced that have other chemistries (for the binder and the refractory phase), specifically to minimize chemical reaction between the mould and the molten casting metallic material. A number of technical changes have been made to enable all dental casting investment products, regardless of their composition, to seek compliance with this International Standard and maintains the agreed philosophy that this International Standard should be inclusive, application-driven and not be limited by composition considerations.

Where appropriate, aspects of the test procedures have been changed to follow the manufacturer's instructions for use. The requirement for thermal dimensional change now takes into account the cooling of some products (after burn-out) to a lower casting temperature. The specification for the dilatometer has been changed for it to be compatible with the heating — and where relevant, the cooling after burn-out — of the product to the casting temperature.

The procedure for determining the initial setting time has been revised to harmonize with that present in the latest edition of the standard for dental gypsum products, ISO 6873:2013.<sup>[1]</sup> Although substantially editorial, there are technical changes.

Information for use now requires a statement of the type of refractory phase(s) that is (are) present.

**ISO 15912:2016(E)**

Labelling requirements for products that contain silica have been revised to comply with the current United Nations Globally Harmonized System for Classification and Labelling of Chemicals (UN GHS)<sup>[2]</sup> and recommendations for silica as a hazardous material.

Containers of liquid must be marked to indicate the use to which the liquid is put.

# Dentistry — Refractory investment and die material

## 1 Scope

This International Standard gives requirements and test methods for determining the compliance of dental casting investment, dental brazing investment, dental pressable-ceramic investment and dental refractory die materials used in the dental laboratory, regardless of the composition of the refractory powder, the composition of the binder, or the particular application.

This International Standard classifies such products into types and classes, according to their intended use and the burn-out procedure recommended by the manufacturer.

It also gives requirements for marking, labelling and manufacturer's instructions.

It specifies requirements for the essential physical and mechanical properties of the products and the test methods to be used for determining them.

NOTE 1 Compliance with all of the requirements presented in [Clause 5](#) may not be necessary for some products, and a requirement might not be applicable to a product with a particular binder chemistry or be intended for an application in which that requirement is irrelevant. When this is the case, a clear statement to this effect is given according to [Clause 5](#).

NOTE 2 A specific quantitative requirement for setting expansion is not included in this International Standard. If the setting expansion of gypsum-bonded investment is measured, then the procedure given in ISO 6873[1] can be considered — a procedure not recommended, however, for investment materials with other binders.

## 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 286-2, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

ISO 1942, *Dentistry — Vocabulary*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 6344-1, *Coated abrasives — Grain size analysis — Part 1: Grain size distribution test*

ISO 6872, *Dentistry — Ceramic materials*

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 15854, *Dentistry — Casting and baseplate waxes*

ISO 22674, *Dentistry — Metallic materials for fixed and removable restorations and appliances*

**koniec náhl'adu – text ďalej pokračuje v platenej verzii STN**