SLOVENSKI STANDARD
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Zobozdravstvo - Barvna karta za določanje intraoralne obarvanosti zob (ISO/DIS 22598:2019)

Dentistry - Colour tabs for intraoral tooth colour determination (ISO/DIS 22598:2019)

Zahnheilkunde - Farbschlüssel für die intraorale Zahnfarbbestimmung (ISO/DIS 22598:2019)

Médecine bucco-dentaire - Plaquettes de teinte pour la determination de la teinte dentaire intra-buccale (ISO/DIS 22598:2019)

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Dentistry — Colour tabs for intraoral tooth colour determination

Médecine bucco-dentaire — Couleur rings pour determination des couleur de dents

ICS: 11.060.10

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Contents

Page

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).

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 2, *Prosthodontic materials*.

Introduction

In dentistry, colour matching, colour communication among dentist and dental technician (indirect restorations) and colour reproduction and verification are essential elements for a successful aesthetic restoration. Other important appearance attributes include translucency/opacity, gloss, opalescence and fluorescence.

Questions regarding the principles of chromatics and the individual colour perception have been controversially discussed for years between those involved. Today, various systems are available for the purpose of objectivizing tooth colour perception. The most common method is the colour comparison using reference colours being supplied in the form of shade guides consisting of tooth shaped colour tabs made of ceramic, for a dental colour system. One objective of this standardization project is to specify test methods for such colour tabs.

Dentistry — Colour tabs for intraoral tooth colour determination

1 Scope

This document describes requirements for tooth-like colour representations made of ceramic materials used to determine the tooth colour in the patient's mouth or to check the colour of dental prosthesis, which are referred to as colour tabs in this document.

The colour coordinates of colour tabs are left to the manufacturers' discretion together with colour shifting of ceramic and other masses or materials used in manufacturing the dental prosthesis. All those do not fall into the scope of this document.

Resources for visualizing the colours of ceramic and other masses, e.g. mass shade guides and colour patterns for certain ceramic and other masses, do not fall into the scope of this document. They can be manufactured from any materials and serve solely to illustrate the colour effect; they do not serve to determine colour inside the mouth.

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 1942, *Dentistry — Vocabulary*

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

ISO 11664-4, *Colorimetry — Part 4: CIE 1976 L*a*b* Colour space*

ISO 15223-1, *Medical devices — Symbols to be used with medical device labels, labelling and information to be supplied — Part 1: General requirements*

ISO/TR 28642:2016, *Dentistry — Guidance on colour measurement*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1942 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
colour difference
single number or metric expressing the distance from complete match in colour or shade

Note 1 to entry: A colour distance metric defined by the International Commission on Illumination (CIE) is called delta E (ΔE).

Note 2 to entry: Two formulae for calculating ΔE are recommended in this document: CIELAB or CIE 76 (denoted ΔE*ab) and CIEDE2000 (denoted ΔE00). CIEDE2000 formula is currently the most advanced one and is recommended by CIE as it exhibits better correlation with visual findings compared with CIELAB.

3.2
colour coordinates
set of three independent colour components required for the unique description of any colour in a defined colour coordinate system

EXAMPLE CIE-Lab (L*a*b*), CIE LCH*, CIEDE2000 (L'C'h').

3.3
colour sample
colour representation, corresponding as exactly as possible with a discrete colour of a tooth colour system

Note 1 to entry: A colour sample can be manufactured from any material and serves solely to illustrate the colour effect; it is not to be used for colour determination inside the mouth.

3.4
shade guide
arrangement of colour tabs representing in their entirety a manufacturer-specific tooth colour system and serving for the visual (intraoral) determination of the patient's tooth colour by means of comparing the latter with the colour tabs of the shade guide.

Note 1 to entry: Usually, the colour tabs are set in (a) joint holder/s, with colour tabs being removable from the holder.

3.5
colour tab
body similar in shape and colour to a tooth, which is manufactured from at least two layers of ceramic materials and represents as exactly as possible a discrete colour of a tooth colour system

Note 1 to entry: The colour tab is usually fixed to a holding pin intended to enable positioning of the colour tab close to the patient's tooth without major occlusions.

3.6
tooth colour
within this document the colour of a tooth is understood as a measurand and shall mean the (true) value of the measurand tooth colour according to JCGM 100:2008 (Joint Committee for Guides in Metrology)

3.7
countershape
surround to accommodate a colour tab

Note 1 to entry: Also known as "mould".

4 Requirements

4.1 Materials and processing

Colour tabs shall be manufactured from at least two layers of ceramic materials.

NOTE The exact structure of the colour tab as well as the composition and the processing of the materials are at the manufacturers' discretion.

4.2 Appearance

Colour tabs used for intraorally matching the shades of natural teeth shall provide toothlike shapes

Note 1 to entry This is to provide a shape the user is familiar with. Many years of clinical experience show, that tooth shaped tabs lead to an intuitive handling of the tabs.

