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STN	**Stomatológia Dentálna pec Časť 3: Skúšobná metóda na vyhodnotenie merania vysokoteplotnej sintrovacej pece so samostatným termočlánkom (ISO 13078-3: 2023)**	**STN EN ISO 13078-3** 85 6368

Dentistry - Dental furnace - Part 3: Test method for the evaluation of high temperature sintering furnace measurement with a separate thermocouple (ISO 13078-3:2023)

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This standard includes the English version of the European Standard.

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Dentistry - Dental furnace - Part 3: Test method for the evaluation of high temperature sintering furnace measurement with a separate thermocouple (ISO 13078-3:2023)

Médecine bucco-dentaire - Fours dentaires - Partie 3: Méthode d'essai pour l'évaluation du mesurage des hautes températures de frittage au moyen d'un thermocouple externe (ISO 13078-3:2023)

Zahnheilkunde - Sinterofen - Teil 3: Prüfverfahren für die Bewertung der Hochtemperatur-Sinterofen-Messung mit separatem Thermoelement (ISO 13078-3:2023)

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EN ISO 13078-3:2023 (E)

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European foreword

This document (EN ISO 13078-3:2023) 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of an identical text or by endorsement, at the latest by November 2023, and conflicting national standards shall be withdrawn at the latest by November 2023.

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The text of ISO 13078-3:2023 has been approved by CEN as EN ISO 13078-3:2023 without any modification.

INTERNATIONAL STANDARD

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Dentistry — Dental furnace —

Part 3: Test method for the evaluation of high temperature sintering furnace measurement with a separate thermocouple

Médecine bucco-dentaire — Fours dentaires —

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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.

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This document was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 2, *Prosthodontic materials,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 55, *Dentistry,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 13078 series can be found on the ISO website.

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Introduction

In dentistry, sintering furnaces are used for sintering restorations made from oxide ceramics and from sintered metal. Significantly higher temperatures than those for firing dental ceramic masses containing silicates are necessary, for example, zirconium oxide (ZrO_2) is typically sintered at a temperature of up to 1 700 °C.

The sintering temperature is of vital importance for the properties of the sintered material. Incorrect sintering temperatures can result in low strength, discrepant colouration or low ageing resistance. Furthermore, a poor accuracy of fit owing to excessively low or uneven shrinkage can occur. Too high a sintering temperature generally results in a larger grain size and can lead to a softening and consequently a deformation of the restoration. Too low a sintering temperature results in an inadequate sintering quality and possibly residual porosity.

INTERNATIONAL STANDARD **ISO 13078-3:2023(E)**

Dentistry — Dental furnace —

Part 3: Test method for the evaluation of high temperature sintering furnace measurement with a separate thermocouple

1 Scope

This document specifies a test method for the calibration of resistance-heated high temperature sintering furnaces that are suitable for the sintering of dental restorations in the temperature range up to 1 700 °C.

NOTE A test method for the calibration of dental furnaces that are suitable for the heat treatment of silica-based dental ceramic restorations in the temperature range between 600 °C and 1 050 °C is specified in ISO 13078:2013. ISO 13078:2013 does not include the calibration of sintering furnace used for sintering of oxide ceramics or sintered metal, in whose firing chamber restorations are sintered at temperatures of 1 000 °C to 1 700 °C.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 6872, *Dentistry — Ceramic materials*

IEC 60584-1:2013, *Thermocouples — Part 1: EMF specifications and tolerances*

IEC 60584-3, *Thermocouples — Part 3: Extension and compensating cables — Tolerances and identification system*