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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 45999.2-2025

**Dentistry - Dental furnace - Part 2: Test method for evaluation of
furnace programme via firing glaze**

牙科学 牙科烧结炉 第2部分：上釉烧结评价烧结炉程序设计的测试方法

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 2 of GB/T 45999 Dental Sintering Furnaces. GB/T 45999 has been published in the following parts.

--- Part 2: Test method for sintering furnace program design for glaze firing evaluation.

This document is equivalent to ISO 13078-2:2016 "Dentistry - Dental sintering furnaces - Part 2: Evaluation of glaze firing - Sintering furnace program design" Test Methods for Design.

Introduction

Dental sintering furnaces are suitable for making dental metal porcelain restorations, and some dental sintering furnaces are also suitable for all-ceramic restorations.

The furnace is used to fire or sinter dental opaque porcelain, dentin porcelain and enamel porcelain onto the base material.

The process temperature is 600°C~1000°C.

Different calibration procedures used by dental sintering furnace manufacturers and the different types of dental sintering furnaces currently on the market will affect Sintering results.

Although different dental sintering furnaces may have the same digital external display, when processing the same ceramic under otherwise similar conditions, the firing the degree of knotting can identify different results.

Different sintering degrees will not only produce differences that can be directly judged by the human eye (such as color and transparency), but also produce deviations that cannot be detected by the human eye.

For example, the linear thermal expansion coefficient, bonding strength, value and acid solubility. These changes may lead to the aesthetics of dental ceramic restorations.

changes and clinical failures (e.g., rupture).

GB/T 45999 "Dentistry - Dental sintering furnaces" is intended to consist of three parts.

--- Part 1: Test method for temperature measurement using independent thermocouples. The purpose is to specify a test method for calibrating dental furnaces.

This test method is applicable to the testing of silica-based dental ceramic restorations in the temperature range of 600°C~1050°C.

Heat treatment.

--- Part 2: Test method for design of firing furnace program for evaluation of glaze firing. The purpose is to describe a method for determining the glaze firing test.

The test method of sample sintering degree to adapt the firing procedure of dental sintering furnace to a certain dental ceramics stipulates the test method of sample sintering degree to adapt the firing procedure of dental sintering furnace to a certain dental ceramics the degree of sintering achieved.

--- Part 3: Test method for evaluating high temperature sintering furnace measurements using independent thermocouples. The purpose is to specify the calibration resistance heating Test methods for high-temperature sintering furnaces suitable for sintering dental restorations in the temperature range up to 1700°C.

Dentistry Dental sintering furnaces Part 2.

Test method for programming firing furnaces for glaze firing evaluation

1 Scope

This document specifies the degree of sintering achieved by the user. It describes a method for determining the degree of sintering of sintered specimens to achieve the desired result.

The firing schedule of the furnace is adapted to the test method of certain dental ceramics.

This document applies to Type I dental ceramic powders that comply with ISO 6872. This test method evaluates the sintering degree of dental ceramics.

Monitoring the temperature control of dental sintering furnaces. This document is also suitable for evaluating the reproducibility of firing in dental sintering furnaces or for comparing several dental sintering furnaces.

The furnace is formed.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

ISO 1942 Dentistry - Vocabulary Note. GB/T 9937-2020 Dental Terminology (ISO 1942:2020, MOD) ISO 2768-1 General tolerances - Part 1: Tolerances on linear and angular dimensions without separate tolerance indications Note. GB/T 1804-2000 General tolerances Tolerances for linear and angular dimensions without tolerance indication (eqv ISO 2768-1:1989) and test methods) Note. GB/T 6682-2008 Specifications and test methods for water used in analytical laboratories (ISO 3696:1987, MOD) ISO 6872 Dentistry-Ceramic materials Note. GB 30367-2025 Dental ceramic materials (ISO 6872:2024, IDT) ISO 9693 Dentistry - Compatibility tests for metal-ceramic and ceramic-ceramic systems ISO 13078 Dentistry - Dental furnace- Test method for temperature measurement using independent thermocouples

3 Terms and Definitions

For the purposes of this document, the terms and definitions defined in ISO 1942, ISO 6872, ISO 9693 and ISO 13078 and the following apply.

The URLs for terminology databases used for standardization maintained by ISO and IEC are as follows.

sintering degree firing degree the condition of the surface or edge of dental ceramics heat-treated according to defined sintering instructions, based on which relevant physical properties can be assessed visually.