



American National Standard/
American Dental Association
Standard No. 164

Dental Furnace, Part 2: Test Method for Evaluation of Furnace Program via Firing Glaze

Identical adoption of ISO 13078-2:2016 *Dentistry — Dental furnace - Part 2:
Test method for evaluation of furnace programme via firing glaze*

ADA American
Dental
Association®

Standards Committee on Dental Products

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**AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION
STANDARD NO. 164 FOR DENTAL FURNACE, PART 2: TEST METHOD FOR
EVALUATION OF FURNACE PROGRAM VIA FIRING GLAZE**

The ADA Standards Committee on Dental Products (SCDP) has approved ANSI/ADA Standard No. 164 for ANSI/ADA Standard No. 164 for Dental Furnace, Part 2: Test Method for Evaluation of Furnace Program via Firing Glaze. This and other standards for dental materials, instruments and equipment are being formulated by working groups of the ADA SCDP. The Committee has representation from all interests in the United States in the standardization of materials, instruments and equipment in dentistry. The Committee has adopted the standards, showing professional recognition of their usefulness in dentistry, and has forwarded them to the American National Standards Institute with a recommendation that the standards be approved as American National Standards. The American National Standards Institute granted approval of ADA Standard No. 164 as an American National Standard on May 18, 2018.

The ADA Standards Committee on Dental Products thanks the members of Working Group 2.20 on Porcelain and Metal-Ceramic Systems, and the organizations with which they were affiliated at the time the standard was developed:

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AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION STANDARD NO. 164 FOR DENTAL FURNACE, PART 2: TEST METHOD FOR EVALUATION OF FURNACE PROGRAM VIA FIRING GLAZE

FOREWORD

(This Foreword does not form a part of ANSI/ADA Standard No. 164 for Dental Furnace, Part 2: Test Method for Evaluation of Furnace Program via Firing Glaze).

This standard is an identical adoption of ISO 13078-2:2016, Dentistry – Dental Furnace - Part 2: Test method for evaluation of furnace programme via firing glaze. ADA SCDP Working Group No. 2.20 on Porcelain and Metal-Ceramic Systems examined the international standard and found it acceptable for identical adoption as ANSI/ADA Standard No. 164.

AMERICAN NATIONAL STANDARD/AMERICAN DENTAL ASSOCIATION STANDARD NO. 164 FOR DENTAL FURNACE, PART 2: TEST METHOD FOR EVALUATION OF FURNACE PROGRAM VIA FIRING GLAZE

Introduction

Dental furnaces are suitable for the manufacturing of metal-ceramic and partly also all-ceramic restorations for use in dentistry. Dental furnaces are particularly used for firing or sintering, respectively, of dental opaques, dentine and enamel materials to the respective compatible substructure materials. According to the current state of the art, the temperature of this process lies between 600 °C and 1 000 °C.

The different calibration processes applied by the manufacturers of dental furnaces, as well as the varying construction types of the dental furnaces currently on the market, influence the firing result.

Despite the fact that different dental furnaces can have identical digital external displays, different results regarding the degree of firing can be identified when processing the same ceramics under otherwise similar conditions.

A different degree of firing not only causes differences that can be judged directly by the human eye (e.g., color and transparency), but also deviations that cannot be detected by the eye. These are, for instance, the linear coefficient of thermal expansion, the bonding strength, the strength values and the acid solubility. Such changes may result in clinical failures (e.g., fractures), as well as changed aesthetics of the dental ceramic restoration.