

Vitreous and porcelain enamels - Preparation of samples and determination of thermal expansion coefficient (ISO 20274:2017)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Vitreous and porcelain enamels - Preparation of samples
and determination of thermal expansion coefficient (ISO
20274:2017)

Emaux vitrifiés - Préparation d'échantillons d'émail et
détermination du coefficient de dilatation thermique
(ISO 20274:2017)

Emails und Emailierungen - Herstellung von Proben
und Bestimmung des thermischen
Ausdehnungskoeffizienten (ISO 20274:2017)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

This document (EN ISO 20274:2017) has been prepared by Technical Committee ISO/TC 107 “Metallic and other inorganic coatings” in collaboration with Technical Committee CEN/TC 262 “Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys” the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 20274:2017 has been approved by CEN as EN ISO 20274:2017 without any modification.

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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).

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This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

Introduction

The thermal expansion coefficient of enamel and the relevant substrate is an important material characteristic, as it provides information on the stress ratios in the composite material.

Vitreous and porcelain enamels — Preparation of samples and determination of thermal expansion coefficient

1 Scope

This document specifies the procedures for the preparation of enamel samples for measurement of the thermal length change and calculation of the thermal expansion coefficient.

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 7991, *Glass — Determination of coefficient of mean linear thermal expansion*

ISO 19496-1, *Vitreous and porcelain enamels — Terminology — Part 1: Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19496-1 apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Apparatus

4.1 Standard laboratory instruments, instruments in accordance with ISO 7991 and 4.2 to 4.4.

NOTE An optical dilatometer can be used as an alternative to a pushrod dilatometer.

4.2 Casting mould made from ceramic, for example, boat made from corundum, porcelain, or casting mould made from metal, for example, tool steel (see Annex A).

4.3 Melting crucible made from non-contaminating material, for example, corundum, porcelain, with a height of about 55 mm and a diameter of approximately 40 mm.

4.4 Laboratory furnace, in the temperature range from 800 °C to 1 100 °C controllable to ± 5 °C.

5 Requirements for the test specimen

The test specimen shall be rod-shaped and straight with either

- an approximately circular cross section with a diameter constant to ± 1 mm over its length, or
- an approximately square cross section with an edge length constant to ± 1 mm over its length.

The diameter or edge length of the test specimen shall correspond ± 1 mm to the diameter or edge length of the reference sample.