



**SLOVENSKI STANDARD**  
**SIST EN 1217:1998**

**01-oktober-1998**

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**Materiali in predmeti v stiku z živili - Preskusne metode ugotavljanja absorpcije vode keramičnih predmetov**

Materials and articles in contact with foodstuffs - Test methods for water absorption of ceramic articles

Werkstoffe und Gegenstände in Kontakt mit Lebensmitteln - Prüfverfahren für die Wasseraufnahme keramischer Gegenstände

Matériaux et objets en contact avec les denrées alimentaires - Méthodes d'essai pour l'absorption d'eau par les objets en céramique

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**Ta slovenski standard je istoveten z: EN 1217:1997**

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**ICS:**

67.250	Materiali in predmeti v stiku z živili	Materials and articles in contact with foodstuffs
81.060.20	Izdelki iz keramike	Ceramic products

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**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 1217

December 1997

ICS 67.250; 81.060.20

Descriptors: kitchen utensils, ceramics, food-container contact, tests, water absorption tests

English version

## Materials and articles in contact with foodstuffs - Test methods for water absorption of ceramic articles

Matériaux et objets en contact avec les denrées  
alimentaires - Méthodes d'essai pour l'absorption d'eau par  
les objets en céramique

Werkstoffe und Gegenstände in Kontakt mit Lebensmitteln  
- Prüfverfahren für die Wasseraufnahme keramischer  
Gegenstände

This European Standard was approved by CEN on 15 February 1997.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 194 "Utensils in contact with food", 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 June 1998, and conflicting national standards shall be withdrawn at the latest by June 1998.

Further European Standards have been published with the following titles:

- EN 1183      *Materials and articles in contact with foodstuffs - Test method for thermal shock and thermal shock endurance*
- EN 1184      *Materials and articles in contact with foodstuffs - Test methods for translucency of ceramic articles*

A further standard is being prepared with the following title

*Materials and articles in contact with foodstuffs - Test method for crazing resistance of ceramic articles*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

This European Standard specifies three test methods for the determination of the water absorption of ceramic articles. Water absorption is a property of the body, and is related to the volume of interconnected pores which can be filled by water under the immersion conditions of a water absorption test method. The volume of interconnected pores is also known as the open porosity of the body.

Water absorption provides generally an indication of the degree of vitrification of the body of a ceramic article; the lower the water absorption, the higher the degree of vitrification. A high degree of vitrification is necessary for certain categories of ceramic articles to achieve important performance characteristics. Water absorption is one of the properties used to characterize different types of ceramic articles.

Any of the three test methods may be used, as appropriate, but method A is based on European Community Regulation No 679/72 'Customs classification of products to be allied to porcelain: 'Vitreous china' or 'Semi-vitreous china' type, and is for use for such classification purposes.

## 1 Scope

This European Standard specifies test methods for the determination of the water absorption of ceramic articles. (standards.iteh.ai)

Three test methods are described: [SIST EN 1217:1998](#)

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- Test method A, based on the increase in mass of test specimens after immersion in boiling water under defined conditions, which requires test specimens with not more than one glazed surface;
- Test method B, based on the same principle and general procedure as method A but with a longer period of immersion in boiling water;
- Test method C, based on the increase in mass of test specimens after a combination of evacuation of the test specimens to assist water penetration, followed by immersion in water and boiling; the test specimens may be glazed on both surfaces and are taken from different parts of a ceramic article to include possible inhomogeneities of the article.

NOTE: Values of very low water absorption should preferably be determined by test method C.

## 2 Definitions

For the purposes of this standard, the following definitions apply:

**2.1 water absorption:** Quantity of water that can be absorbed by the body of a ceramic ware.

**2.2 body:** Ceramic material shaped to constitute the ware, more or less vitrified, which is generally coated with glaze.

## 3 Principle

The increase in mass is determined as a result of immersion in water under controlled conditions and is expressed as a percentage of the mass of the dry test specimen.

## 4 Water

**4.1 Distilled or de-ionized water,** for test methods A and B.

**4.2 De-gassed distilled or de-gassed de-ionized water,** for test method C.

## 5 Apparatus

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### 5.1 Test methods A and B

**5.1.1 Oven,** air circulating, capable of maintaining a temperature of  $110\text{ °C} \pm 5\text{ °C}$ .

**5.1.2 Balance,** capable of weighing to an accuracy of 0,05 g.

**5.1.3 Glass vacuum desiccator.**

**5.1.4 Vessel,** suitable for the immersion and boiling of the test specimens.

**5.1.5 Source of heat.**

**5.1.6 Smooth cotton cloth.**

**5.1.7 Fine brush.**

**5.1.8 Saw,** suitable for cutting test specimens from ceramic articles.

NOTE: The need for the saw is optional

### 5.2 Test method C

**5.2.1 Oven,** air circulating, capable of maintaining a temperature of  $110\text{ °C} \pm 5\text{ °C}$ .

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**5.2.2 Desiccator.**

**5.2.3 Balance**, capable of determining masses between 5 g and 20 g to an accuracy of 0,001 g.

**5.2.4 Vessel**, in which the test specimen can be evacuated in a desiccator and which is subsequently used for boiling the test specimen in water.

NOTE 1: Suitable equipment for carrying out evacuation and water immersion is shown in figure 1. The use of setter pins is to prevent the test items from bumping on the bottom of the boiling vessel which at all times should contain sufficient water to cover the test items.

**5.2.5 Laboratory vacuum pump**, capable of maintaining a pressure within the vessel of  $2,5 \text{ kPa} \pm 1,5 \text{ kPa}$ .

**5.2.6 Manometer** capable of measuring absolute pressures in the range from 1 kPa to 4 kPa.

**5.2.7 Source of heat.**

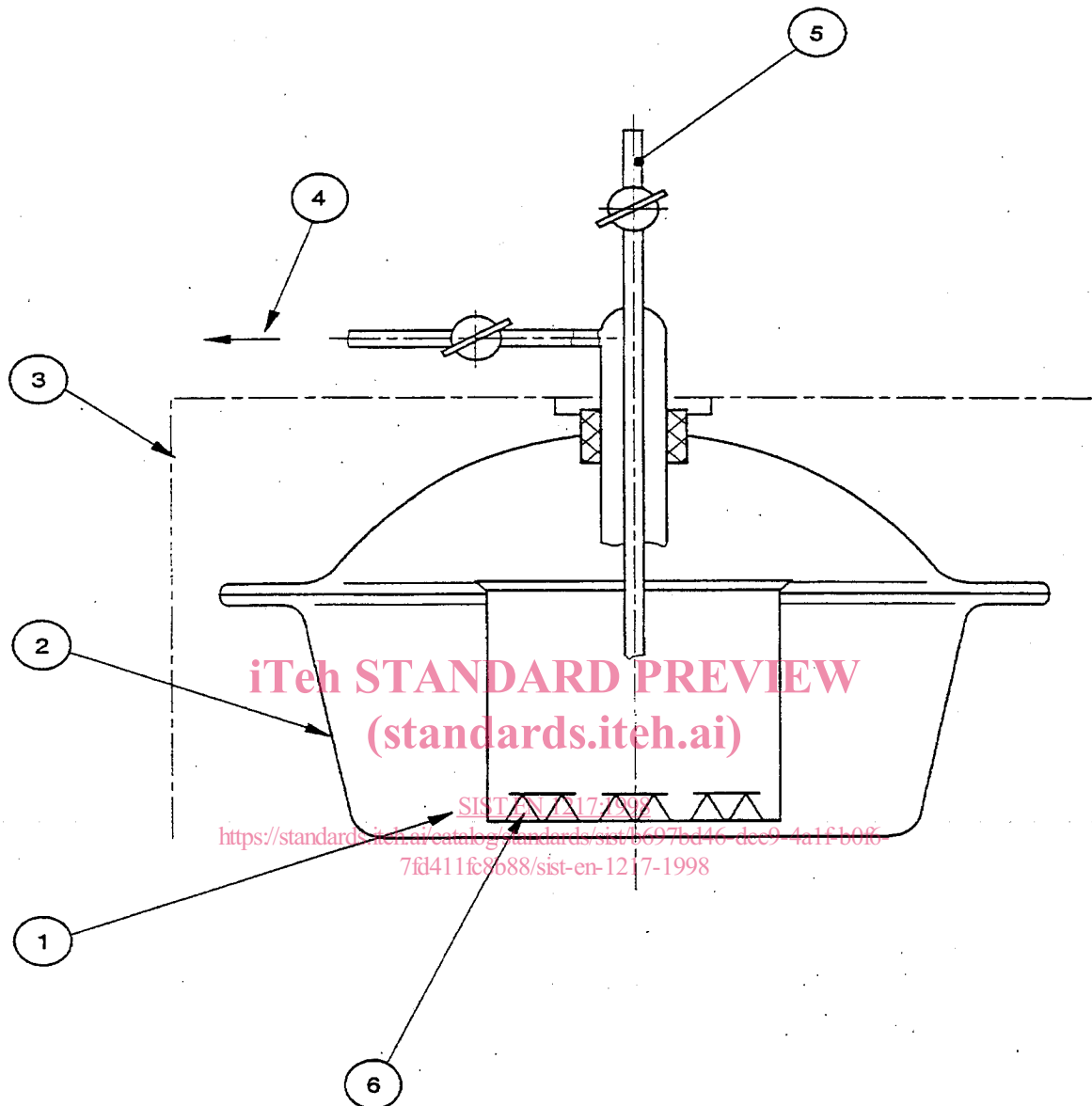
**5.2.8 Smooth cotton cloth.**

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- 1 - Glass beaker containing test specimens supported on ceramic setter pins
- 2 - Glass vacuum desiccator
- 3 - Perforated metal safety screen
- 4 - To vacuum pump and manometer
- 5 - Connection to de-gassed distilled or de-gassed de-ionized water
- 6 - Test specimens and setter pins

**Figure 1: Suitable equipment for carrying out evacuation and water immersion (for method C)**