SLOVENSKI STANDARD
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Posoda za kuhanje ï Pekaļ i za uporabo v klasiļ nih gospodinjskih peļ icah

Cookware - Ovenware for use in traditional domestic ovens

Kochutensilien - Ofengeschirre zur Verwendung in Haushalts-Backöfen

Articles culinaires - Articles culinaires a usage domestique conçus pour la cuisson au four traditionnel

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ICS:

97.040.60	Kuhinjska posoda, jedilni servisi in jedilni pribor	Cookware, cutlery and flatware

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

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Contents

Foreword

This document (EN 13834:2007) 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of an identical text or by endorsement, at the latest by November 2007, and conflicting national standards shall be withdrawn at the latest by November 2007.

This document supersedes ENV 13834:2000.

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

1 Scope

This European Standard specifies safety and performance requirements for items of ovenware for use in domestic ovens. It is applicable to ovenware regardless of material or method of manufacture.

It is applicable to products intended for use both on top of the stove and in oven.

This European Standard is not applicable to metal pots, items for single use, throwaway ovenware or ovenware intended for use in a microwave oven only.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 1183, *Materials and articles in contact with foodstuffs — Test methods for thermal shock and thermal shock endurance*

EN 14483-2:2004, *Vitreous and porcelain enamels — Determination of resistance to chemical corrosion — Part 2: Determination of resistance to chemical corrosion by boiling acids, neutral liquids and/or their vapours*

EN 14916, *Domestic cookware — Graphical symbols (pictograms)*

EN ISO 2064, *Metallic and other inorganic coatings — Definitions and conventions concerning the measurement of thickness (ISO 2064:1996)*

EN ISO 2360, *Non-conductive coatings on non-magnetic electrically conductive basis materials — Measurement of coating thickness — Amplitude-sensitive eddy current method (ISO 2360:2003)*

EN ISO 2409:1994, *Paints and varnishes — Cross-cut test (ISO 2409:1992)*

ISO 2747, *Vitreous and porcelain enamels — Enamelled cooking utensils — Determination of resistance to thermal shock*

ISO 4532, *Vitreous and porcelain enamels — Determination of the resistance of enamelled articles to impact — Pistol test*

ISO 13805, *Vitreous and porcelain enamels for aluminium — Determination of the adhesion of enamels on aluminium under the action of electrolytic solution (spall test)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
ovenware
utensil, in the form of a hollow or flat container, intended for use in the cooking of food either solid or liquid

NOTE Ovenwares include, but are not restricted to, the follow items:
– gratin and roasting dishes used in the preparation and cooking of vegetable and meat dishes;
– ceramic pots used in the preparation and cooking of meats and/or vegetables;
– bakeware used in the preparation and cooking of various types of dough mixtures (bakeware varies in shape and may include removable parts)
– pate mould used in the preparation and cooking of pates.

3.2
fixing system
attachment method, or methods, utilized in fastening a handle to the body of an item of ovenware or to fix a knob to a lid where the handle or knob are not an integral part of the body or lid

3.3
furniture
handles and knobs which are attached to the body or lid of ovenware using a fixing system (3.2) and intended to facilitate the carrying and handling of the article in normal use

3.4
removable furniture
furniture designed to be attached and removed from the body or lid of ovenware without the use of tools

3.5
capacity
volume of water held when the ovenware is filled to the brim while standing on a level surface

3.6
usable capacity
two thirds of the capacity

NOTE The true usable capacity of the ovenware varies with the food being cooked. The figure given here is an average value intended for use in test situations only and not as information to the consumer.

3.7
coating
deposit and/or coating applied to a substrate to obtain specific performance properties independent of the properties of the substrate

3.8
non-stick coating
coating applied to the interior of the ovenware to achieve an anti-adherent effect during cooking and to facilitate cleaning

3.9
easy clean coating
coating applied to the interior of the ovenware to facilitate cleaning

3.10
vitreous enamel
inorganic non-metallic material formed from a mixture of mineral compounds, applied to a metallic substrate and fused at high temperature to form a homogeneous coating

3.11
glaze
substance resulting from the melting or sintering of inorganic constituents and designed to form a surface layer which is fused or is capable of being fused in one or more coats and the firing temperature of which is higher than 500 °C

3.12
organic coating
material formed from a mixture of resins and polymers, applied to a metallic substrate, cured at low temperatures to form a homogeneous coating

3.13
tinning or tin plating
deposition of a thin coating of tin onto a steel substrate to ensure protection against corrosion

3.14
glass
inorganic non-metallic material produced by the complete fusion of raw materials at a high temperature into a homogeneous liquid which is then cooled to a rigid condition essentially without crystallisation/crystallise

3.15
glass-ceramic
inorganic, non-metallic material produced by the complete fusion of raw materials at high temperatures into a homogeneous liquid which is then cooled to a rigid material and heat treated to achieve mainly sub-microscopic small crystallites

3.16
ceramic
inorganic, non-metallic material produced by firing a mixture of raw materials at high temperature. The firing temperature is high enough to give the necessary strength to the article, which is already shaped, but lower than the temperature which is necessary to achieve complete fusion of the mixture

3.17
popping
distinctive sound made by the application of a load to the apparently flat base of an item of ovenware due to the sudden transformation of the base from convex to concave

3.18
flexible bakeware
utensil, in the form of a hollow or flat container, intended for use in the cooking of food and deformable in any point by manual pressure

4 Materials

Ovenware shall be made of materials of a type and purity that, under normal conditions of use, present no toxic hazards nor in any way affect the organoleptic qualities of food prepared in it.

5 General conditions for testing

Unless otherwise specified, all measurements shall be carried out at ambient temperature of (23 ± 5) °C with unused ovenware.

6 Construction

6.1 General

NOTE Requirements 6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.1.5 and 6.1.6 may be verified on the same ovenware.

6.1.1 Stability

The product shall be stable when placed empty, without lid, in the least favourable position, on a surface inclined at an angle of 5°.

6.1.2 Hygiene

All surfaces intended to come into contact with food shall be easily cleanable under normal circumstances.

6.1.3 Mechanical hazards

All components shall be free from burrs, splinters or sharp edges that could cause injury or discomfort to the user.

6.1.4 Handle position with respect to ovenware

Handles shall be positioned above the centre of gravity of an item of ovenware when filled with sand to its capacity.

6.1.5 Knob design

It shall be possible to use the knob for its normal purposes while using an oven glove or cloth. In addition the knob shall remain firmly attached to the lid after exposing it to a temperature 20 °C above the manufacturer's maximum recommended temperature, or 250 °C where no recommendation is given, for 30 min.

6.1.6 Lid design

It shall be possible to remove it from the body using a force equal to the weight of the lid, + 2 N, in any position at ambient temperature. This test shall be carried out both before and after exposing the product, filled to its usable capacity with water, to a temperature 20 °C above the manufacturer's maximum recommended temperature for 30 min and allowing cooling in ambient combinations for ten minutes. This test shall also be carried out when the item has cooled to ambient temperature. Where no maximum temperature is recommended, the temperature used shall be 250 °C.

The lid shall remain in place throughout the heating and cooling stages. If the lid is fitted with a locking device, this test shall be carried out with the device disengaged.

6.1.7 Thermal shock resistance of brittle materials

All ceramic, glass-ceramic and glass ovenware and their covers shall be tested in accordance with EN 1183. The temperature chosen shall be at least 180 °C. The test shall be carried out on only one product.

6.1.8 Heat resistance

After testing in accordance with Annex A at a temperature of 20 °C above the manufacturer's recommended maximum temperature, or 250 °C where no maximum temperature is given, for 1 h, the ovenware shall show no damage.

6.1.9 Resistance to leakage

The design of ovenware, including those with folded seams and loose bottoms, shall be such that it does not leak when prepared according to the manufacturer's instructions and filled with any preparation which may be expected to be cooked in it.

6.2 Geometry

6.2.1 General

The points of measurement of any claimed dimensions shall be made clear to the consumer, e.g. by means of a simple sketch.

6.2.2 Capacity

If a capacity is claimed, the actual capacity shall not be less than the claimed capacity.

6.2.3 Dimensions

Any claimed dimension shall be within ± 5 mm of the average of two measurements of the actual dimension.

NOTE Ceramic ovenware is exempted from this requirement due to the inherent size variations caused by firing during its manufacture.

7 Furniture

7.1 General

The requirements of this clause are applicable only to equipment which is attached to the ovenware by means of a fixing system.

It is not the intention that all these tests are passed in sequence. Except where otherwise stated, each test shall stand alone.

7.2 Materials

No specific requirements for materials or combinations of materials for the manufacture of ovenware furniture are given in this European Standard but any material used shall comply with the requirements of the appropriate tests.

7.3 Heat resistance

All furniture designed to be attached to the main body of a product shall show no damage after completion of the test described in Annex A for 4 cycles of heating it to a temperature 20 °C higher than the recommended maximum temperature, or 250 °C where no recommendation is made, for 1 h, and allowing it to cool to ambient temperature.

7.4 Fatigue resistance

When tested in accordance with Annex B, a handle assembly shall withstand 15 000 cycles, without permanent distortion or permanent loosening of the handle or its fixing system.

8 Coatings

8.1 General

NOTE Coatings may be:

— decorative,

— non stick,

— protective, or

— energy related.

8.2 Non-stick coatings

8.2.1 Cross-cut adhesion test

There shall be no removal of the coating greater than classification 2 when tested in accordance with EN ISO 2409 for hard substrates, with the following modifications:

a) precondition the test piece by immersing it in continuously boiling water for 15 min, allowing it to cool to ambient temperature and wiping it dry;

b) repeat 7.2.6 of EN ISO 2409:1994 a further 3 times applying the tape at 90° to the previous application each time.

8.2.2 Non-stick performance tests

8.2.2.1 When tested in accordance with Annex C for 5 cycles, any item of bakeware with a non-stick coating shall permit the test food to be fully released and the surface to be wiped clean.

8.2.2.2 When roasting and gratin dishes are tested in accordance with Annex D for 5 cycles, the test food shall not adhere to the surface and it shall be wiped clean.

NOTE The surface is deemed to be clean if unaided visual examination made subsequent to wiping reveals no trace of solid material.

8.3 Vitreous enamel on steel and cast iron

8.3.1 Boiling citric acid test

When the interior enamel coat is tested in accordance with EN 14483-2:2004, Clause 10, the maximum acceptable weight loss shall be 5,0 g/m² for the liquid phase and 10,0 g/m² for the vapour phase.

8.3.2 Boiling water test

When the interior enamel coat is tested in accordance with EN 14483-2:2004, Clause 13, the maximum acceptable weight loss shall be 1,5 g/m² for the liquid phase and 4,5 g/m² for the vapour.

8.3.3 Thermal shock test

When tested in accordance with ISO 2747, the minimum acceptable failure temperature shall be 250 °C.

8.3.4 Resistance to impact

When tested in accordance with ISO 4532, the exterior enamel shall resist a minimum impact of 20 N, showing no damage greater than 2 mm after 24 h.

8.4 Adhesion test for vitreous enamel on aluminium

When tested in accordance with ISO 13805, exposure of the base metal shall not exceed 3 mm from the test edge.

8.5 Hard anodized aluminium

8.5.1 Thickness

When measured as specified in EN ISO 2064 and EN ISO 2360, the minimum average thickness of an anodized layer shall be 25 µm.

This check shall be carried out only where the hard anodized coating is not covered by a separate coat of a different material.

8.5.2 Stain resistance

When tested in accordance with Annex E, there shall be no staining visible on any surface intended to come into contact with food.

8.5.3 Alkali resistance

When tested in accordance with Annex F, there shall be no loss of the insulating properties of the coating of any surface intended to come into contact with food.