



**SLOVENSKI STANDARD**  
**SIST ENV 13834:2002**

**01-januar-2002**

---

DcgcXUnU\_i \ Ub^Y!'DY\_U ]'nUi dcfUvc`j`\_`Ug] b] \ [ cgdX]b^g\_] \ `dY ]WU

Cookware - Ovenware for use in conventional domestic ovens

Kochutensilien - Ofengeschirre zur Verwendung in Haushalts-Backöfen

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

**(standards.iteh.ai)**

**Ta slovenski standard je istoveten z: ENV 13834:2000**

<https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002>

**ICS:**

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

**SIST ENV 13834:2002**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST ENV 13834:2002](#)

<https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002>

EUROPEAN PRESTANDARD  
PRÉNORME EUROPÉENNE  
EUROPÄISCHE VORNORM

**ENV 13834**

October 2000

ICS 97.040.60

English version

**Cookware - Ovenware for use in conventional domestic ovens**

Articles culinaires - Articles culinaires à usage domestique  
conçus pour la cuisson au four conventionnel

Kochutensilien - Ofengeschirre zur Verwendung in  
Haushalts-Backöfen

This European Prestandard (ENV) was approved by CEN on 17 September 2000 as a prospective standard for provisional application.

The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard.

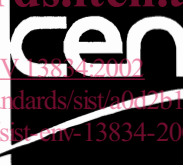
CEN members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

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.

**iTeh STANDARD PREVIEW**  
**(standards.itech.ai)**

SIST ENV 13834:2002

<https://standards.itech.ai/catalog/standards/sist/a0d261ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002>



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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

## Contents

Foreword.....	3
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions.....	4
4 Materials.....	6
5 General conditions for testing.....	6
6 Construction.....	6
7 Furniture .....	7
8 Coatings.....	8
9 Performance .....	10
10 Product Information.....	10
Annex A (normative) Test for heat resistance of ovenware - Test for heat resistance of furniture .....	12
Annex B (normative) Handle fatigue test.....	13
Annex C (normative) Non-Stick performance test for bakeware - Easy clean performance test for metallic and ceramic bakeware - Corrosion test for tinned bakeware .....	15
Annex D (normative) Non-Stick performance test for roasting and gratin dishes - Easy clean performance test for roasting and gratin dishes - Corrosion test for tinned roasting and gratin dishes .....	16
Annex E (normative) Adhesion test for vitreous enamel on aluminium.....	17
Annex F (normative) Resistance to staining of hard anodised coatings .....	18
Annex G (normative) Resistance to alkali of hard anodised aluminium .....	19
Annex H (normative) Central loading test .....	20
Annexe J (normative) Eccentric loading test .....	21
Annex K (normative) Distributed load test .....	22

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

SIST ENV 13834:2002

<https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002>

## Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 194 "Utensils in contact with food", the secretariat of which is held by BSI.

The annexes A to K are normative.

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.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST ENV 13834:2002](https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002)

<https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002>

## 1 Scope

This European Standard specifies safety and performance requirements for items of ovenware for use in conventional domestic ovens. It is applicable to all 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 standard is not applicable to metal casseroles, items for single use, throwaway ovenware or ovenware intended for use in a microwave oven only.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

EN ISO 2064, *Metallic and other non-organic coatings - Definitions and conventions concerning the measurement of thickness (ISO 2064:1980).*

EN ISO 2360, *Non-conductive coatings on non-magnetic basis metals - Measurement of coating thickness - Eddy current method (ISO 2360:1982).*

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

ISO 2742, *Vitreous and porcelain enamels - Determination of resistance to boiling citric acid.*

ISO 2744, *Vitreous and porcelain enamels - Determination of resistance to boiling water and water vapour.*

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.*

## 3 Terms and definitions

For the purposes of this European Standard, 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 includes the follow items :

- Gratin and roasting dishes used in the preparation and cooking of vegetable and meat dishes.
- Ceramic casseroles: 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.
- Paté mould: used in the preparation and cooking of patés.

**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**

Generic term covering 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 contained 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 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 usually applied to the interior of an item of ovenware to achieve an anti-adherent effect during cooking and facilitate cleaning.

**3.9****easy clean coating**

Coating applied to the interior of an item of 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.

<https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002>

**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 a mixture of raw materials at high temperature into a homogeneous liquid which is then cooled to a rigid condition essentially without crystallization

**3.15****glass-ceramic**

Inorganic non-metallic material, produced by the complete fusion of a mixture of raw materials at high temperature, into a homogeneous liquid which is then cooled into a rigid material and heat treated to achieve a certain degree of crystallization, mainly submicroscopic small crystallites.

**3.16****ceramic**

Inorganic non-metallic material formed 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.

**4 Materials**

No specific requirements for material(s) of manufacture for ovenware are given in this standard.

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 verified on an unused item of ovenware at ambient temperature of  $(23 \pm 5)^\circ\text{C}$

**6 Construction**

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 item of ovenware.

**6.1 General****6.1.1 Stability**

The product shall be stable when placed empty without lid on a level surface.

**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**

<https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002>

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 the 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  $20^\circ\text{C}$  above the manufacturer's maximum recommended temperature, or  $250^\circ\text{C}$  where no recommendation is given, for 30 min.



### 6.1.6 Lid Design

The design of the lid shall be such that it shall be possible to remove it from the body using a force equal to the weight of the lid, + 2N 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 minutes and allowing it to cool 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 shall be tested in accordance with EN 1183.

### 6.1.8 Heat resistance

The ovenware shall show no damage after testing as specified in Annex A for a temperature of 20°C above the manufacturer's recommended maximum temperature for 1 hour or 250°C where no maximum temperature is given.

### 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

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

### 6.2.1 Capacity

The actual capacity shall be equal to or greater than the claimed capacity.

### 6.2.2 Dimensions

Any claimed dimension shall be within  $\pm 5$  mm of the average of two measurements of the actual dimension.

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

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

## 7 Furniture

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

SIST ENV 13834:2002  
<https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af-cdd19c4465ac/sist-env-13834-2002>

### 7.1 Materials

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

### 7.2 Properties

#### 7.2.1 General

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

### 7.2.2 Heat resistance

Any furniture designed to be attached to an item of ovenware shall show no damage after being subjected to the test described in Annex A for 4 cycles of heating to a temperature 20° C higher than the recommended maximum temperature for 1 hour, or 250 °C where no recommendation is made, and allowing to cool to ambient temperature.

### 7.2.3 Fatigue Resistance.

A handle assembly shall withstand 5 000 cycles, without permanent distortion or permanent loosening of the handle or its fixing system, when tested as described in Annex B.

## 8 Coatings

NOTE Coatings may be decorative, non stick, protective or energy related.

### 8.1 Non-stick coatings

#### 8.1.1 Cross-cut adhesion test

There shall be no removal of the coating greater than classification 2 when tested as described in EN ISO 2409:1994 for hard substrates, with the following modifications:

- a) precondition the test piece by immersing it in continuously boiling water for 15 mins, allowing it to cool to ambient temperature and wiping it dry ;
- b) repeat clause 7.2.6 of EN ISO 2409:1994 a further 3 times applying the tape at 90° to the previous application each time.

#### 8.1.2 Non-stick performance tests

**8.1.2.1** When tested in accordance with Annex C for 20 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.

**8.1.2.2** When roasting and gratin dishes are tested in accordance with Annex D for 20 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.

### 8.2 Vitreous enamel on steel and cast iron

#### 8.2.1 Boiling citric acid test

When the interior enamel coat is tested in accordance with ISO 2742 the maximum acceptable weight loss shall be 5,0 g/m<sup>2</sup> for the liquid phase and 10,0 g/m<sup>2</sup> for the vapour phase over a test period of 24 h.

#### 8.2.2 Boiling water test

When the interior enamel coat is tested in accordance with ISO 2744 the maximum acceptable weight loss shall be 1,5 g/m<sup>2</sup> for the liquid phase and 4,5 g/m<sup>2</sup> for the vapour phase over a test period of 24 h.

#### 8.2.3 Thermal shock test

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

#### 8.2.4 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.

### 8.3 Adhesion test for vitreous enamel on aluminium

When tested as described in Annex E exposure of the base metal shall not exceed 3 mm from the test edge.

### 8.4 Hard anodised aluminium.

#### 8.4.1 Thickness

The minimum average thickness of an anodised layer shall be 25 µm when measured as specified in EN ISO 2064 and EN ISO 2360.

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

#### 8.4.2 Stain Resistance

When tested as described in Annex F there shall be no staining visible on any surface intended to come into contact with food.

#### 8.4.3 Alkali resistance

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

#### 8.4.4 Hardness

Coatings claimed to be hard anodised shall have a hardness greater than 350 HV 0,5 or equivalent.

### 8.5 Organic external coatings

#### 8.5.1 Cross-cut adhesion test

There shall be no removal of the coating greater than classification 2 when tested as described in EN ISO 2409:1994 for hard substrates, with the following modifications:

- a) precondition the test piece by immersing in continuously boiling water for 15 min, allow it to cool to ambient temperature and wipe it dry ;
- b) repeat clause 7.2.6 of EN ISO 2409:1994 a further 3 times applying the tape at 90° to the previous application each time.

**ITeh STANDARD PREVIEW**  
(standards.iteh.ai)

### 8.6 Tinning

**8.6.1** An item of tinned bakeware shall show no trace of oxidation when tested in accordance with Annex C for 20 cycles. It is permissible to use a tool (wooden or plastic spatulas) to remove residues to assist examination.

<https://standards.iteh.ai/catalog/standards/sist/a0d2b1ef-235f-4385-84af->

**8.6.2** Tinned roasting and gratin dishes shall show no trace of oxidation when tested in accordance with Annex D for 20 cycles.

### 8.7 Easy clean coatings on metallic ovenware

**8.7.1** Easy clean bakeware shall permit the complete removal of all food residues when tested as described in Annex C for 20 cycles.

Any hard water staining is ignored.

**8.7.2** Easy clean roasting and gratin dishes shall permit the complete removal of all food residues when tested as described in Annex D for 20 cycles.

Any hard water staining is ignored.