



# SLOVENSKI STANDARD

## SIST EN 441-10:2000

01-december-2000

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### Refrigerated display cabinets - Part 10: Test for absence of odour and taste

Refrigerated display cabinets - Part 10: Test for absence of odour and taste

Verkaufskühlmöbel - Teil 10: Geruchs- und Geschmacksprüfung

Meubles frigorifiques de vente - Partie 10: Essai d'absence d'odeur et de gout

Ta slovenski standard je istoveten z: **EN 441-10:1994**

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#### **ICS:**

97.130.20      Hladilne naprave za trgovine      Commercial refrigerating  
appliances

**SIST EN 441-10:2000**

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EUROPEAN STANDARD

EN 441-10

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1994

ICS 97.040.30

Descriptors: Refrigerators, furniture, commerce, tests, odour control, taste, food products

English version

**Refrigerated display cabinets - Part 10: Test for  
absence of odour and taste**Meubles frigorifiques de vente - Partie 10:  
Essai d'absence d'odeur et de goûtVerkaufskühlmöbel - Teil 10: Geruchs- und  
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**(standards.iteh.ai)**SIST EN 441-10:2000<https://standards.iteh.ai/catalog/standards/sist/9d6a05bb-f947-4a13-a339-1f6215858fa/sist-en-441-10-2000>

This European Standard was approved by CEN on 1994-10-14. 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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CEN**European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

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

## Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 44 "Household refrigerating appliances", the secretariat of which is held by UNI.

This European Standard shall be given the status of National Standard, either by publication of an identical text or by endorsement, at the latest by april 1995, and conflicting National Standards shall be withdrawn at the latest by april 1995.

This European is part of a series:

- Part 1: Refrigerated display cabinets - Terms and definitions
- Part 2: Refrigerated display cabinets - General mechanical and physical requirements
- Part 3: Refrigerated display cabinets - Linear dimensions, areas and volumes
- Part 4: Refrigerated display cabinets - General test conditions
- Part 6: Refrigerated display cabinets - Classification according to temperature
- Part 7: Refrigerated display cabinets - Defrosting test
- Part 8: Refrigerated display cabinets - Water vapour condensation test
- Part 9: Refrigerated display cabinets - Electrical energy consumption test
- Part 10: Refrigerated display cabinets - Test for the absence of odour and taste
- Part 11: Refrigerated display cabinets - Installation, maintenance and user's guide

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

## 1 Scope

1.1 This standard specifies terminology, general mechanical and physical requirements, test conditions as well as installation, maintenance and user's guide for refrigerated display cabinets for the sale and/or display of food products.

This standard does not cover refrigerated vending machines or cabinets intended for use in catering or similar non retail applications.

1.2 This part of EN 441 specifies methods of test to check that materials used for the internal components of refrigerated display cabinets will not impart either taste or odour to food.

## 2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative 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.

[SIST EN 441-10:2000](https://standards.iteh.ai/catalog/standards/sist/9d6a05bb-f947-4a13-a339-21135551a141-10-2000)

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- EN 441-4 Refrigerated display cabinets - Part 4: General test conditions
- EN 441-6 Refrigerated display cabinets - Part 6: Classification according to temperatures

## 3 Preparation and testing

### 3.1 Ambient temperature

The ambient temperature shall be between +22 °C and +30 °C (for climate classes 2, 3 and 4 see EN 441-4, 4.1.7).

### 3.2 Cleaning

The cabinet shall be cleaned prior to the test in accordance with the manufacturer's instructions and afterwards with pure water.

### 3.3 Thermostat setting

The cabinet shall be operated for 48 h, with the thermostat and other control devices set in accordance with the manufacturer's instructions which will give the required temperatures according to the relevant classification (see EN 441-6, clause 3).

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### 3.4 Samples

The analytical samples and check samples respectively for each cabinet or compartment are :

- a) 100 ml potable water ;
- b) a slice of fresh unsalted butter of 75 mm x 35 mm x 5 mm.

From each of a) and b), six samples at least are necessary to serve as analytical samples and six at least to serve as check samples.

The analytical samples shall be placed in Petri dishes and the check samples in glass containers, the latter being hermetically sealed.

Prior to the test all Petri dishes and containers which are used for the test shall be cleaned with fuming nitric acid and subsequently washed with distilled water until complete absence of odour is obtained.

The analytical samples of water and butter shall be placed uncovered into the cabinet or compartment. The check samples in the hermetically sealed glass containers shall be placed close to the analytical samples.

### 3.5 Test period

The analytical samples and the check samples shall be left in the operating cabinet with the door(s) if any closed and at the specified temperature conditions for 48 h. After 48 h, the analytical samples shall be covered.

The analytical samples and check samples shall be removed and warmed to approximately 20 °C by leaving them in the test room.

## 4 Examination of samples

### 4.1 Conditions

Examination shall be made about 2 h after removal of the samples from the cabinet and shall be carried out by at least three examiners familiar with the test method.

Each examiner receives :

- two analytical samples of water;
- two check samples of water;
- two analytical samples of butter;
- two check samples of butter.

The identity of the samples shall not be made known to the examiners.

The samples of water shall be examined prior to the samples of butter, unless a separate examination by different examiners takes place.

The examiners shall record their remarks independently of each other, in writing.

#### 4.2 Evaluation

The evaluation of the analytical samples shall be carried out with reference to the following scale:

- Mark 0 : no foreign odour or foreign taste;
- Mark 1 : slight foreign odour or foreign taste;
- Mark 2 : definitely perceptible foreign odour or foreign taste;
- Mark 3 : distinct foreign odour or foreign taste.

When the mean value of the individual results during each evaluation for odour and taste exceeds Mark 1 the test shall be repeated. The following provisions shall be made for this second test:

- defrosting of the evaporator;
- cleaning of the cabinet or compartments;
- operation of the empty cabinet for 1 week;
- repetition of defrosting of the evaporator;
- temperature adjustment for the second test for absence of odour and taste.

#### 4.3 Test report

The test report shall clearly state:

- a) the manufacturer's name or trade mark or both;
- b) the model and serial number of the cabinet as well as the description of its internal fittings;
- c) the result of the evaluation as defined in 4.2.