



**SLOVENSKI STANDARD**  
**SIST EN 1230-1:2002**  
**01-maj-2002**

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Paper and board intended for contact with foodstuffs - Sensory analysis - Part 1: Odour

Papier und Pappe vorgesehen für den Kontakt mit Lebensmitteln - Sensorische Analyse  
- Teil 1: Geruch

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Papier et carton destinés a entrer en contact avec les denrées alimentaires - Analyse  
sensorielle - Partie 1: Odeur

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**Ta slovenski standard je istoveten z: EN 1230-1:2001**

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**ICS:**

67.250	Materiali in predmeti v stiku z živili	Materials and articles in contact with foodstuffs
85.060	Papir, karton in lepenka	Paper and board

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**en**

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EUROPEAN STANDARD

EN 1230-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2001

ICS 55.040; 67.250; 85.060

English version

## Paper and board intended for contact with foodstuffs - Sensory analysis - Part 1: Odour

Papier et carton destinés à entrer en contact avec les denrées alimentaires - Analyse sensorielle - Partie 1: Odeur

Papier und Pappe vorgesehen für den Kontakt mit Lebensmitteln - Sensorische Analyse - Teil 1: Geruch

This European Standard was approved by CEN on 30 September 2001.

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 Management Centre 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 Management Centre 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  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard has been prepared by Technical Committee CEN /TC 172, "Pulp, paper and board", the secretariat of which is held by DIN.

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 April 2002, and conflicting national standards shall be withdrawn at the latest by April 2002.

EN 1230 contains the following parts:

- Part 1: Odour
- Part 2: Off flavour (taint)

Annex A is informative.

This standard includes a Bibliography.

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.

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**EN 1230-1:2001 (E)****Introduction**

The purpose of testing paper or board for odour is to establish whether the material to be tested possesses an inherent odour, when kept at room temperature. The test serves for evaluating the sensory quality of paper and board intended for food packaging or otherwise to come into contact with foodstuffs.

NOTE Temperature conditions other than room temperature may be used. In this case the result is not in conformity with this European Standard, which circumstances should be reported together with the result.

In order to give reliable results, this test should be performed by selected assessors.

The result may be influenced by the time elapsed between manufacturing and testing as well as by the storage conditions of the paper or board.

Part 2: "Off flavour (taint)" comprises the corresponding method for the estimation of changes in taste caused by transmission of substances to a test substance.

**1 Scope**

This European Standard specifies the test method for assessment of the odour released by a paper or board sample. It is applicable to all kinds of paper and board, including coated and/or printed material, intended to come into direct or indirect contact with foodstuffs. It is not applicable for the determination of consumers' preference.

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**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 (including amendments).

ISO 5492, *Sensory analysis — Vocabulary*.

ISO 8586-1, *Sensory analysis — General guidance for the selection, training and monitoring of assessors — Part 1: Selected assessors*.

ISO 8589, *Sensory analysis — General guidance for the design of test rooms*.

EN ISO 186, *Paper and board — Sampling to determine average quality (ISO 186:1994)*.

### 3 Terms and definitions

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

#### 3.1

##### **odour**

organoleptic attribute perceptible by the olfactory organ on sniffing certain volatile substances

#### 3.2

##### **sample**

aggregate of all the specimens taken from the lot to provide information on the average quality of the lot and possibly serve as a basis for a decision on the lot [see EN ISO 186]

#### 3.3

##### **test piece**

piece or pieces of paper or board on which the measurement is carried out in accordance with the stipulations of the method of test

The test piece is generally taken from a specimen; in some instances the test piece may be the specimen itself, or several specimens [see EN ISO 186].

#### 3.4

##### **assessor**

any person taking part in a sensory test [see ISO 5492]

#### 3.5

##### **selected assessor**

assessor chosen for his/her ability to perform a sensory test [see ISO 5492]

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### 4 Principle

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Test pieces of the material to be examined are stored in glass jars for 20 h to 24 h at  $(23 \pm 2)$  °C in the dark. The odour of the air in the jars is estimated by a panel consisting of selected assessors. The intensity of the odour is evaluated on a scale from 0 to 4.

### 5 Test panel

The test panel consists of at least six selected assessors under the understanding that six consistent results are given, i. e. that the total difference of the single results regarding the median should not be more than 1,5. The members of the panel shall be trained in the evaluation of odour originating from paper and board. Guidelines concerning the testing and selection of assessors are given in ISO 8586-1.

The assessors shall be in good health and shall not suffer from the common cold at the time of the test.

**NOTE** It is recommended that a reference series is available for training of the assessors and to maintain the level of performance of the test panel. An empty flask or jar serves as the zero reference. Unfortunately there are so far no recognised reference materials for ratings 1 to 4, but every laboratory should prepare its own series. It should be noted that all materials are unstable as regards release of volatile substances (odour), and the series should be replaced frequently.

### 6 Test conditions

The evaluation shall be carried out at room temperature in a quiet, well ventilated room that is free from odours. The relative humidity of the room should be 50 %. Further information is given in ISO 8589.

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### 7 Equipment

#### 7.1 General

All equipments used shall be free from odour and only in use for sensory analysis. Use only minimum-odour cleaning agents for cleaning. Care is needed to ensure that lids, seals and inserts do not become a source of odour. An example of an efficient cleaning process is given in annex A.

#### 7.2 Flat bottom flasks

Wide-necked with conical ground joint and stopper, 500 ml capacity. Jars with wide screw neck intended for storage of dry chemicals, or domestic preserve jars may also be used. The flasks shall be made of coloured glass or covered by aluminium foil whenever there is a possibility that the appearance of the sample may influence the assessors. The number of flasks set up shall be equal to the number of members in the test panel.

### 8 Sampling and storage of sample

If the test result is to be used for assessment of a lot of paper, the number of rolls or stacks to be tested and the method of selecting them shall be in accordance with EN ISO 186.

The sampling and storage shall be carried out in such a way that contamination of the sample is avoided. The outer layers of a stack or roll shall be discarded.

The sample shall be wrapped in several layers of unacquered aluminium foil immediately after sampling to prevent uptake and/or loss of odorous substances from the environment.

Multilayer board shall be tested as a whole.

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### 9 Preparation of sample

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All handling of the sample shall take place in an odour-free room or cupboard.

From the sample cut an amount of test pieces sufficient to give 6 dm<sup>2</sup> of paper or board for each flask. Strips of about 1 cm x 5 cm are recommended.

### 10 Procedure

Introduce the test pieces (6 dm<sup>2</sup>) loosely into the flat bottom flasks (7.2). Ensure that the surfaces of the test pieces are freely exposed. Close the flat bottom flasks and keep them for 20 h to 24 h at (23 ± 2) °C in the dark.

**NOTE** If a rough evaluation is needed on very short notice, shorter time of exposure may be used together with elevated temperature. The result is, however, not comparable to that obtained at room temperature after 20 h to 24 h, and the procedure is not in conformity with this European Standard. The time and temperature of exposure should be reported together with the result.

### 11 Evaluation

#### 11.1 The test

Give each assessor their own flask, a known empty flask (reference with an odour rating of zero) and an evaluation form.

**NOTE 1** A computerised data collection system may be used for the evaluation.



The assessor shakes the flask, opens it and sniffs the contents immediately after opening the vessel. If a repetition is necessary, the vessel shall be kept closed for at least 2 min. The assessor records the intensity of the perceived odour on the evaluation form as follows:

- 0 = no perceptible odour;
- 1 = odour just perceptible (still difficult to define);
- 2 = moderate odour;
- 3 = moderately strong odour;
- 4 = strong odour.

Though the steps of the scale uses only whole numbers, the assessors may use half number ratings if considered necessary.

Starting with intensity 2, a description of the odour may be given.

NOTE 2 Due to the sensory fatigue it is recommended that not more than five tests are performed in succession. In order to avoid adaptation effects, it is recommended that the assessors pause for 1 min or 2 min between each test.

## 12 Expression of results

### 12.1 Calculation

Calculate the median of all the individual scores.

One individual result can be discarded if it differs from the median by 1,5 or more. If more than one individual result differs or there are fewer than six consistent results, the test shall be repeated using, if possible, new test pieces.

### 12.2 Result

Report the median value to the nearest 0,5.

## 13 Test report

The test report shall refer to this European Standard and state:

- a) date and place of testing;
- b) all information necessary for complete identification of the sample;
- c) the test result including the median value as specified above and any description of the odour as specified above;
- d) any departure from this European Standard or any circumstances regarded as optional that may have affected the result.