



**SLOVENSKI STANDARD**  
**SIST ISO 5496:1997**  
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Sensory analysis -- Methodology -- Initiation and training of assessors in the detection and recognition of odours

**ITeh STANDARD PREVIEW**

Analyse sensorielle -- Méthodologie -- Initiation et entraînement des sujets à la détection et à la reconnaissance des odeurs

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**ICS:**

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# INTERNATIONAL STANDARD

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**5496**

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## **Sensory analysis — Methodology — Initiation and training of assessors in the detection and recognition of odours**

### **iTeh STANDARD PREVIEW**

*Analyse sensorielle — Méthodologie — Initiation et entraînement des  
sujets à la détection et à la reconnaissance des odeurs*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 5496 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Sub-Committee SC 12, *Sensory analysis*.

Annex A forms an integral part of this International Standard. Annexes B and C are for information only.

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## Introduction

Owing to the complexity of olfaction, assessors who are to make up panels need to undergo a familiarization and training process before undertaking any sensory analysis concerning the detection of odours.

This period of initiation followed by training is intended to teach assessors to evaluate and to identify odours, to teach them to use the appropriate vocabulary, and also to allow them to improve their individual aptitude.

This International Standard provides guidance on the existing techniques used for this purpose.

At a later stage, organizers should direct the training according to the procedures or specific areas of use and, where necessary, make a selection of assessors on the basis of certain criteria.

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# Sensory analysis — Methodology — Initiation and training of assessors in the detection and recognition of odours

## 1 Scope

This International Standard describes several types of method for determining the aptitude of assessors and for training assessors to identify and describe odoriferous products.

The methods described in this International Standard are suitable for use by the agri-foodstuffs industries and industries employing olfactory analysis (e.g. perfumery, cosmetics and aromatics).

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6658:1985, *Sensory analysis — Methodology — General guidance*.

ISO 8589:1988, *Sensory analysis — General guidance for the design of test rooms*.

## 3 Principle

Presentation to the assessors of odoriferous substances in various forms and concentrations, in accordance with the procedures specified in this International Standard.

Assessment and identification by the assessors of the odours given off by these substances and recording of the results.

## 4 Products

4.1 **Water**, neutral, tasteless, still and odourless.

4.2 **Ethanol**, 96,9 % (V/V), free from extraneous odours, even in low concentrations.

4.3 **Other suitable media**, appropriate to the requirements of the industry concerned.

4.4 **Odoriferous substances**, as pure as possible:

- a) substances chosen from those given in table A.2, and used at the concentrations proposed, and/or
- b) any other substance deemed to be of interest, depending on the aim of the test or the requirements of the industry concerned.

For the training phase, the collection of odours shall comprise odoriferous substances representative of several groups of odours (e.g. terpinic, floral) and substances which the assessors will examine (to determine that the assessors have no anosmia for these substances).

It is also advisable to include odours representative of certain defects (e.g. odours typical of cleaning products, printing inks) which are likely to be encountered by the assessors in the forthcoming evaluations.

Odoriferous substances serving as references shall be chosen from among those having a stable composition and which can be stored for an acceptable length of time without deterioration. These substances shall be stored in a cool place (around + 5 °C) and protected from air and light.

NOTE 1 When in aqueous media, the aromatic power of certain substances increases with dilution.

## 5 General test conditions

### 5.1 Test room

The tests shall be carried out in a room meeting the requirements specified in ISO 8589.

Special precautions shall be taken to remove odours from the test room as much as possible (e.g. by ventilation).

### 5.2 General test rules

In addition to the general rules which apply to assessors involved in any sensory analysis and given in ISO 6658, the assessors participating in these tests shall not have carried out any other sensory analysis concerned with the detection or assessment of odours or odoriferous compounds within the 20 min prior to the test.

To avoid tiring the assessors, it is recommended that no more than 10 odoriferous substances are presented to them per session.

## 6 Methods

The olfactory assessment can be carried out by direct methods or by retro-nasal methods.

There are currently three direct methods<sup>1)</sup> of smelling, i.e.

- assessment of odours in flasks (6.1.1);
  - assessment of odours on smelling strips (6.1.2);
  - assessment of encapsulated odours (6.1.3);
- and two retro-nasal (or pharyngo-nasal) methods of smelling, i.e.

- assessment of odours in the gaseous phase (6.2.1);
- assessment of odours by ingestion of aqueous solutions (6.2.2).

### 6.1 Direct methods of smelling

#### 6.1.1 Method of assessing odours in flasks

##### 6.1.1.1 Principle

Presentation to the assessors of a series of flasks containing different odoriferous substances at given concentrations.

<sup>1)</sup> The assessment of odours using an olfactometer is not considered in this International Standard as it is not used in initiation and training.

#### 6.1.1.2 Substances

**6.1.1.2.1 Odoriferous substances**, chosen for example from table A.2, at the specified dilution.

#### 6.1.1.3 Apparatus

**6.1.1.3.1 Individual tinted glass flasks**, of sufficient capacity to hold the products to be tested (generally between 20 ml and 125 ml) and to leave sufficient head space to permit equilibrium of the vapour pressure, equipped with unlubricated ground glass stoppers.

Alternatively, **beakers**, fitted with a watch-glass, or suitable **disposable containers**, sold commercially. If plastics apparatus is used, it is essential to check that it is made of an odour-free material which does not absorb odours and which bears no chemical affinity with the substances under test.

#### 6.1.1.4 Preparation of samples

Where necessary, prepare in accordance with the instructions given in A.2 suitable dilutions of the substances used to obtain the appropriate concentrations given in table A.1.

Prepare the samples at least 30 min before the test, to allow time for the vapour pressure to reach equilibrium at ambient temperature, as follows.

##### Code the flasks and stoppers.

Place the appropriate quantities of the substances prepared in the coded flasks, taking care to leave sufficient head space in the flasks.

The substances are poured directly into the flasks, placed on a medium (e.g. cotton or absorbent paper) which is already in the flasks, or blended with a medium (e.g. fat).

Close the flasks with the glass stoppers or watch-glasses.

#### 6.1.1.5 Procedure

Present to each assessor the series of flasks prepared. Instruct the assessor to carry out the evaluation as follows.

The assessor opens the flasks one by one and, with the mouth closed, sniffs the vapour phase in order to identify each odoriferous product. There is no strict methodology, provided that the assessor smells all the flasks at suitable intervals in the same way, e.g. in short sniffs, or deep breaths, etc. Once a decision has been made, the assessor closes the flask and replies to the questions on the answer



form (see clause 7). (See the specimen answer form in annex B.)

NOTE 2 Depending on whether the assessors are undergoing the initiation phase or the training or selection phase, they may or may not be permitted to smell each product several times, or to return to previously examined flasks.

#### 6.1.1.6 Interpretation of results

Interpret the results in accordance with clause 8.

### 6.1.2 Method of assessing odours on smelling strips

#### 6.1.2.1 Principle

Presentation to the assessors of a series of smelling strips impregnated with odoriferous substances.

#### 6.1.2.2 Substances

6.1.2.2.1 **Odoriferous substances**, chosen for example from table A.2, at the specified dilution.

#### 6.1.2.3 Apparatus

6.1.2.3.1 **Smelling strips**, i.e. small strips of filter paper, of variable porosity depending on the manufacturer, and of various shapes (rounded, bevelled, etc.)<sup>2)</sup>, with a mark at the bottom between 50 mm to 100 mm from the end.

6.1.2.3.2 **Strip-holders** or **tweezers**, made of an odourless material.

6.1.2.3.3 **Tinted glass flasks**, of suitable capacity for holding the odoriferous substances (one flask per substance).

6.1.2.3.4 **Droppers** (optional).

#### 6.1.2.4 Preparation of samples

Prepare, in accordance with the instructions given in A.2, stock solutions of the substances used.

Prepare one substance at a time and place in a flask.

Rapidly dip the bottom ends of the strips (6.1.2.3.1) (for each of the assessors) one by one, in the flask up to the mark or, preferably, using a dropper (6.1.2.3.4), place a drop of the substance on the bottom end of each strip.

2) The names of suppliers can be obtained from manufacturers of aromatic products.

The strip shall not be over-impregnated with solution; the migration front of the liquid shall be between 5 mm and 10 mm from the bottom end of the strip.

Place the prepared strip on the strip-holder or pick it up with the tweezers (6.1.2.3.2), taking care that the strips do not come into contact with each other. Leave the strips for a few seconds to allow any evaporation of the solvent to occur.

#### 6.1.2.5 Procedure

Hand the prepared strips to the assessors and instruct them to proceed as follows.

The assessor performs the assessment of the odour by sniffing the smelling strip, waving it gently a few centimetres from his/her nose. The strip shall under no circumstances touch the nose, a moustache or the skin.

NOTE 3 Because of evaporation, the odour is only fully released for a limited period of time, depending on the odoriferous substance.

Once a decision has been made, the assessor discards the strip and replies to the questions on the answer form (see clause 7). (See the specimen answer form in annex B.)

It is essential that the strips are collected and disposed of after use in a sealed container, so as not to saturate the atmosphere of the test room and thus interfere with subsequent assessments.

The assessor then goes on to examine the next substance.

#### 6.1.2.6 Interpretation of results

Interpret the results in accordance with clause 8.

### 6.1.3 Method of assessing encapsulated odours

#### 6.1.3.1 Principle

Presentation to the assessors of a series of micro-encapsulated odoriferous substances.

#### 6.1.3.2 Substances

6.1.3.2.1 **Odoriferous substances**, chosen for example from table A.2, at the specified dilution.

#### 6.1.3.3 Apparatus

6.1.3.3.1 **Encapsulated odoriferous substances**,