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**Sensory analysis — General guidelines
for the selection, training and
monitoring of selected assessors and
expert sensory assessors**

*Analyse sensorielle — Lignes directrices générales pour la sélection,
l'entraînement et le contrôle des sujets qualifiés et sujets sensoriels
experts*

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8586 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 12, *Sensory analysis*.

This first edition of ISO 8586 cancels and replaces ISO 8586-1:1993 and ISO 8586-2:2008. The main requirements and criteria for the selection, training and monitoring of selected assessors and of expert sensory assessors have been revised to summarize the information given in ISO 8586-1:1993 and ISO 8586-2:2008.

This corrected version of ISO 8586:2012 incorporates the following correction:

- in [Table B.3](#), third column, fourth line, the formula for calculation of S_7 has been corrected.

Introduction

A sensory analysis panel constitutes a true “measuring instrument”, and consequently the results of the analysis depends on its members.

The recruitment of persons willing to participate in a panel therefore needs to be carried out with care and to be considered as a real investment, both in time and money.

Sensory assessment can be performed by three types of assessors:

- sensory assessors;
- selected assessors;
- expert sensory assessors.

“Sensory assessors” are any people taking part in a sensory test. They can be “naive assessors” who do not have to meet any precise criterion, or “initiated assessors” who have already participated in sensory tests (see ISO 5492:2008, 1.5).

“Selected assessors” are chosen for their ability to perform a sensory test (see ISO 5492:2008, 1.6).

“Expert sensory assessors” are selected assessors with a demonstrated sensory sensitivity and with considerable training and experience in sensory testing, who are able to make consistent and repeatable sensory assessments of various products (see ISO 5492:2008, 1.8).

It is necessary to undertake a preliminary selection of the candidates at the recruitment stage, in order to eliminate those who would be unsuited for sensory analysis. However, the final selection can only be made after selection and training. The selection and training methods to be employed depend on the tasks to intend for the “selected assessors” and “expert sensory assessors”.

Sensory assessors work as a panel which is managed by a panel leader. In certain cases (especially for descriptive sensory analysis), the panel may be divided into specialized subgroups.

The recommended procedure involves:

- a) recruitment and preliminary screening of naive assessors;
- b) familiarization of naive assessors who are to become initiated assessors;
- c) selection of initiated assessors in order to determine their ability to perform particular tests, who then become selected assessors;
- d) possible training of selected assessors to become expert sensory assessors.

The exact procedures covered by a) and b) and the nature of the tests performed in c) and d) depend on the tasks intended for the panel.

Expert sensory assessors have demonstrated particular acuity and reproducibility in panel work, and have developed a good long-term sensory memory, allowing reliable comparative judgements, possibly in the absence of control samples.

The panel leader is responsible for the general monitoring of the group of expert sensory assessors and for their training. The expert sensory assessors are not responsible for the choice of tests used, the presentation of the samples or for the interpretation of results. These matters are the responsibility of the panel leader who also decides how much information is given to the panel.

The performance of selected assessors should be monitored regularly to ensure that the criteria by which they were initially selected continue to be met.

The entire process is illustrated in [Figure 1](#).

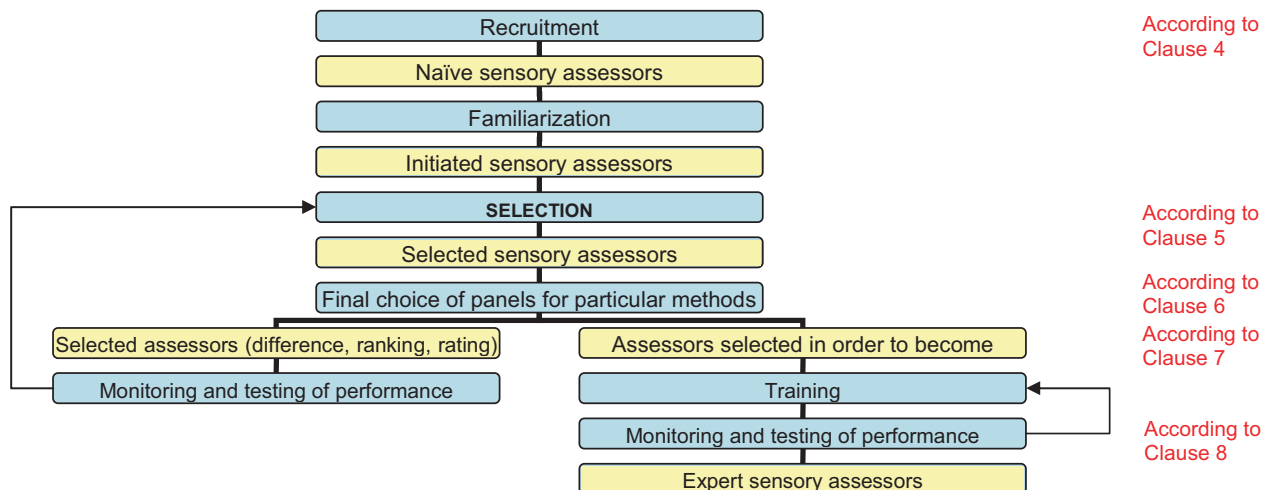


Figure 1 — Entire process

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Sensory analysis — General guidelines for the selection, training and monitoring of selected assessors and expert sensory assessors

WARNING — This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This International Standard specifies criteria for the selection and procedures for the training and monitoring of selected assessors and expert sensory assessors. It supplements the information given in ISO 6658.

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.

ISO 5492:2008, *Sensory analysis — Vocabulary*

ISO 6658, *Sensory analysis — Methodology — General guidance*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5492 and the following apply.

3.1 repeatability

precision under repeatability conditions

Note 1 to entry: Repeatability can be expressed quantitatively in terms of the dispersion characteristics of the results.

[SOURCE: ISO 3534-2:2006, 3.3.5]

Note 2 to entry: Repeatability related to sensory analysis is defined as a measure of the agreement between assessments on the same sample under the same conditions. See [Table A.1](#).

3.2 repeatability conditions

observation conditions where independent test/measurement results are obtained with the same method on identical test/measurement items in the same test facility or measuring facility by the same operator using the same equipment within short intervals of time

Note 1 to entry: Repeatability conditions include:

- the same measurement procedure or test procedure;
- the same operator;
- the same measuring or test equipment used under the same conditions;

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- the same location;
- repetition over a short period of time.

[SOURCE: ISO 3534-2:2006, 3.3.6]

Note 2 to entry: Short intervals of time related to sensory analysis are defined as the repetition over the same session.

3.3 reproducibility

precision under reproducibility conditions

Note 1 to entry: Reproducibility can be expressed quantitatively in terms of the dispersion characteristics of the results.

Note 2 to entry: Results are usually understood to be corrected results.

[SOURCE: ISO 3534-2:2006, 3.3.10]

Note 3 to entry: Reproducibility related to sensory analysis is defined as a measure of the agreement between assessments on the same sample under different conditions for assessors and panel. See [Table A.1](#).

3.4 reproducibility conditions

observation conditions where independent test/measurement results are obtained with the same method on identical test/measurement items in different test or measurement facilities with different operators using different equipment

[SOURCE: ISO 3534-2:2006, 3.3.11]

Note 1 to entry: Reproducibility conditions related to sensory analysis may include different times (sessions), different environments and different panels. See [Table A.1](#).

4 Selection of assessors

4.1 General

The following general characteristics are desirable for willing participants for training:

- a) they shall be motivated and interested in further developing their sensory skills;
- b) they shall be willing to participate.

4.2 Recruitment, preliminary screening and initiation

4.2.1 General

To recruit candidates and to select those most suitable for training as selected assessors, follow [4.2.2](#) to [4.2.5](#).

4.2.2 Recruitment

Three questions arise when recruiting persons to form a sensory analysis panel.

- From where should people be sought to constitute the group?
- How many people shall be selected?
- How shall the people be selected?

4.2.3 Types of recruitment

4.2.3.1 General

Two types of recruitment are available to organizations:

- through the personnel department of the organization (internal recruitment);
- recruit people from outside the organization (external recruitment).

It is possible to constitute a mixed panel from both types of recruitment.

4.2.3.2 Internal recruitment

Internal candidates are recruited from their office, plant or laboratory staff. It is advisable to avoid those persons who are too personally involved with products or projects being examined, in particular those involved at the technical or commercial level, because they may cause the results to be biased.

In this type of recruitment, it is vital that the organization's general management and hierarchy provide their support and make it known that sensory analysis is considered as forming part of everyone's work. This can be made known at the hiring stage of the personnel.

4.2.3.3 External recruitment

The recruitment is conducted outside the organization.

The most commonly used means for this purpose are:

- by phone and newspaper (recruitment through classified advertisement in the local press, in specialized publication or in newspapers which are distributed free of charge, etc. — in this case, all types of people can reply and it is necessary to carry out a selection);
- opinion poll organizations — some of these organizations can provide the names and addresses of persons likely to be interested;
- in-house "consumer" files, compiled as a result of advertising campaigns or complaints;
- persons visiting the organization;
- personal acquaintances.

4.2.3.4 Mixed panel

A mixed panel may be formed using internal and external recruitment, in variable proportions.

4.2.4 Advantages and disadvantages of internal and external recruitment

4.2.4.1 General

Organizations may wish to use independent internal or external panels for different tasks.

4.2.4.2 Internal recruitment

4.2.4.2.1 Advantages

The advantages are:

- the people are available;

- it is not necessary to make provision for any payment (however, in order to maintain interest, it may be desirable to offer incentives);
- a better confidentiality *vis-à-vis* the results is ensured, which is particularly important for research work;
- assurance of panellist punctuality.

4.2.4.2.2 Disadvantages

The disadvantages are:

- problems related to the hierarchy of the organization;
- candidates are influenced in their judgements by knowledge of the products;
- it is difficult to allow for the evolution of the organization's products (people are influenced by their changing familiarity with the organization's products);
- replacement of candidates is more difficult (limited number of persons in small organizations);
- less choice of people;
- lack of availability;
- conflict of priorities.

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4.2.4.3 External recruitment

4.2.4.3.1 Advantages

The advantages are:

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- a wide range of choice;
- a subsequent supply of new persons by word of mouth;
- no problems with hierarchy;
- much easier selection, without the risk of offending people if they are unsuitable;
- easy availability.

4.2.4.3.2 Disadvantages

The disadvantages are:

- the method is expensive (remuneration, paperwork);
- this method is better suited to urban communities where there is a sufficient number of inhabitants; in rural areas, it may not be easy to obtain sufficient suitable people in the area, but advantage can be taken of co-operatives (e.g. milk, wine) — in this case, the risk that some candidates are influenced in their judgment because of their experience shall be taken into account;
- since it is necessary that the individuals be available, a disproportionate number of retired people, unemployed women or students are sometimes encountered because it is more difficult to recruit those in full-time employment;
- after having paid for the selection and training, there is a risk that people leave at a moment's notice.

4.2.5 Number of persons to be selected

Experience has shown that, after the recruitment, the selection procedures eliminate approximately half the people for reasons such as gustative sensitivity and material conditions.

The number of persons to be recruited varies depending on the following elements:

- the financial means and the requirements of the organization;
- the types and frequency of tests to be conducted;
- whether or not it is necessary to interpret the results statistically.

It is highly desirable that a panel has at least 10 selected assessors. At least two or three times the number of persons actually required to constitute the final panel should be recruited, e.g. in order to obtain a panel of 10 persons, 40 to 60 persons should be recruited and a minimum of 20 persons should be selected.

For specialized purposes and different types of sensory tests, a higher number of assessors can be required.

4.3 Background information and preselection

4.3.1 General

Background information on the candidates may be obtained by submitting them to a combination of clearly understood questionnaires coupled with interviews by persons experienced in sensory analysis. The aspects specified in 4.3.2 to 4.3.5 shall be explored.

4.3.2 General criteria

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4.3.2.1 Availability

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Candidates shall be available to attend both training and subsequent assessments. Personnel who travel frequently or who have continual heavy workloads are often unsuited for sensory work.

4.3.2.2 Attitudes to foods

Strong dislikes for certain foods and beverages, in particular those which it is proposed to assess, together with any cultural or other reasons for not consuming certain foods or beverages, should be determined. Candidates who are adventurous in their eating habits often make good assessors for descriptive analyses.

4.3.2.3 Knowledge and aptitude

The initial sensory perceptions of the candidates have to be interpreted and expressed, requiring certain physical and intellectual abilities, in particular the capacity to concentrate and to remain unaffected by external influences. If the candidate is then required to evaluate only one type of product, knowledge of all aspects of that product may be beneficial. It is then possible to choose expert assessors from those candidates who have shown an aptitude for sensory analysis of this product.

4.3.2.4 Ability to communicate

The ability of candidates to communicate and describe the sensations they perceive during an assessment is particularly important when considering candidates for descriptive analyses. This ability can be determined at the interview and again during screening tests.

Additional desirable characteristics of candidates include:

- a) a good memory for sensory attributes;
- b) the ability to verbalize descriptions of products.

4.3.2.5 Ability to describe

Desirable characteristics of candidates include the ability to:

- a) describe products and verbalize sensations;
- b) develop a memory for the description of sensory attributes.

4.3.3 Health criteria

The candidates shall be in good general health. They shall not suffer from any disabilities, allergies or illnesses which may affect those senses relevant to the sensory analysis to be undertaken and shall not be taking medication which might impair their sensory capacities and thus affect the reliability of their judgements. It may be useful to know whether the candidates have dental prostheses, since they can have an influence in certain types of evaluation involving texture or flavour.

Colds or temporary conditions (e.g. pregnancy) should not be a reason for eliminating a candidate.

4.3.4 Psychological criteria

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4.3.4.1 Interest and motivation

Candidates who are interested in sensory analysis and the product or products to be investigated are likely to be more motivated and hence are likely to become better assessors than those without such interest and motivation. <https://standards.iteh.ai/catalog/standards/sist/cd911ad2-e296-4112-8e2c-744102434b05/iso-8586-2012>

4.3.4.2 Sense of responsibility and power of concentration

Candidates shall show interest and motivation for the tasks and shall be willing to persevere with tasks demanding prolonged concentration. They shall be punctual in attending sessions and shall be reliable and honest in their approach.

4.3.4.3 Ability to judge

Assessors shall come to a decision, stand by it without any personal preferences, be self-critical and know their limitations.

4.3.4.4 Willingness to co-operate

Assessors should be willing to learn and not be dominant in a group discussion.

4.3.5 Other factors

Other information which may be recorded during recruitment is name, age group, sex, nationality, educational background, current occupation, and experience in sensory analysis. Information on smoking habits may also be recorded, but candidates who smoke shall not be generally excluded.

IMPORTANT — Any files on individual persons shall comply with the legal requirements of the country concerned.