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Analyse sensorielle -- Méthodologie -- Lignes directrices générales
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**ISO
6658**

Second edition
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Sensory analysis — Methodology — General guidance

Analyse sensorielle — Méthodologie — Lignes directrices générales

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ISO 6658:2005(E)**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 6658 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 12, *Sensory analysis*.

This second edition cancels and replaces the first edition (ISO 6658:1985), which has been technically revised.

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Introduction

This International Standard constitutes a general introduction to the methodology of sensory analysis and should be read before undertaking the more detailed test procedures described in other International Standards. It covers the general area of methodology and is intended to fulfil the following functions:

- a) to provide a brief background of the essential features of methods of sensory analysis for the user of specific tests;
- b) to provide details of general requirements, procedures and interpretation of results common to all or most tests;
- c) to provide sufficient guidance on requirements, procedures and interpretation of results for the different specific tests to allow choice of the most appropriate procedure(s) for solution of a particular problem.

It comprises three main aspects, covered in Clauses 4, 5 and 6.

It is essential that Clause 4 “General requirements” be read first. Clause 5 “Methods of test” describes, in a general manner, all the main tests, under five headings:

- Definition; **iTeh STANDARD PREVIEW**
- Application; **(standards.iteh.ai)**
- Assessors; [SIST ISO 6658:2011](https://standards.iteh.ai/catalog/standards/sist/4558040b-25c0-44a0-84c8-962ff31ed4c6/sist-iso-6658-2011)
- Procedure; <https://standards.iteh.ai/catalog/standards/sist/4558040b-25c0-44a0-84c8-962ff31ed4c6/sist-iso-6658-2011>
- Analysis of results.

Clause 6 is concerned with some general principles of data collection and analysis of sensory data and also briefly covers general principles of statistical treatment of the results.

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Sensory analysis — Methodology — General guidance

1 Scope

This International Standard gives general guidance on the use of sensory analysis. It describes tests for the examination of foods by sensory analysis, and includes some information on the techniques to be used if statistical analysis of the results is required.

Generally these tests are intended only for objective sensory analysis. However, if a test can be used for determining preference, this is indicated.

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, *Sensory analysis — Vocabulary*

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3 Terms and definitions

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

3.1

sensory analysis

examination of organoleptic attributes of a product by the sense organs

4 General requirements

4.1 Basic information

This clause covers the general requirements common to all situations encountered in sensory analysis. The information basic to these requirements is as follows.

- a) The human response to one stimulus cannot be isolated from previous experience or from other sensory stimuli received from the environment.

NOTE Nevertheless, influences arising from these two sources can be controlled and the effect standardized.

- a) Variability in sensory response is inherent in any group of people used for testing and is unavoidable; this can arise from inconsistencies within an individual, and through physiological and psychological differences between individuals.

NOTE However, with training, such a group can show highly consistent individual responses. Recognition of these factors is important in the analysis of results.

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- b) Systematic biases in sensory experiments involving human response can result in misleading data and incorrect interpretation that can be difficult to identify. The factors that can result in bias should be identified and controlled as far as possible by appropriate experimental design and conduct of the tests.
- c) The validity of the conclusions drawn from the results is dependent upon the test used and the way it is conducted, including the questions that have been asked.

4.2 Statement of objectives

There are three main types of objective, as follows:

- a) those in which the primary aim of the test is to categorize, rank or describe the product(s);
- b) those in which the aim is to distinguish between two or more products; here it is important to distinguish between the need to know
 - if there is a difference at all,
 - how great is the magnitude of the difference,
 - the direction (or quality) of that difference,
 - the influence of that difference, e.g. with regard to preference, or
 - if all or only part of a population is detecting a difference;
- c) those in which reassurance is sought (that products do not differ).

In sensory analysis, a given problem frequently requires appreciable discussion or thought before an appropriate test is selected. This is because the initial concept of the problem may require clarification.

4.3 Choice of test

The choice of appropriate test depends largely on the nature of the test objective, but also needs to take account of factors associated with the product, the assessors, the test environment, and the desired level of analytical precision and statistical confidence in the conclusions. The action that would occur based on the outcome of the test should be determined in advance.

For each test, an attempt is made in Clause 5 to give guidance as to its relevance. Preliminary tests may be necessary to confirm the applicability of a given test.

Because of sensory fatigue and the effects of adaptation, only a limited number of samples can be assessed during a session, depending on the nature of the test and the type of product. Some of these effects can be moderated by appropriate rinse procedures and recovery between samples.

Whilst the use of control samples is essential in most cases, their use naturally limits the number of samples that can be assessed during any given session.

The statistical plan should always be determined before commencing the tests. This is especially recommended if the number of samples to be evaluated requires more than one session. Details of statistical plans should be selected from specialized texts. Whatever test method is used, the sequential testing approach described in ISO 16820 should be considered whenever it is desirable to keep the number of samples or the number of assessors to a minimum.

4.4 Choosing and training assessors

A sensory analysis panel constitutes a true “measuring instrument”, and consequently the results of the analyses conducted depend on its members. The recruitment of persons willing to participate in a panel,

therefore, needs to be carried out with care and should be considered as a real investment, both in time and financially. Management support in the organization is necessary if it is to be effective.

Sensory assessment may be made by three types of assessor: “assessors”, “selected assessors” or “expert assessors”. Assessors can be “naive assessors” who do not have to meet a precise criterion of selection or training, or people who have already taken part in some sensory tests (initiated assessor). Selected assessors are assessors who have been selected and trained for the particular sensory test. Expert assessors are assessors who have been selected and trained for a variety of sensory analysis methods and who demonstrate particular acuity in panel work.

NOTE Assessors employed by companies to undertake sensory analysis as their primary job function are examples of expert assessors.

The selection and training methods to be employed depend on the tasks and methods that it is intended to give to the selected assessors. Procedures for training assessors for descriptive tests are different from those for training assessors in discrimination tests.

Detailed procedures and methods for selection and training of assessors are given in ISO 8586-1. It should be noted that these methods sometimes only constitute a way of choosing the better candidates amongst those who are available, rather than to satisfy predetermined criteria. Also, the selection of assessors for their ability to discriminate and describe foods is quite different from that used for preference tests. The former tasks require selection and training, whereas the latter require only that the panel be representative of a specified sector of the population, for example, a group of consumers.

If a selection procedure is to be carried out, some important criteria for choosing assessors are as follows:

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- a) general ability to perform the specific sensory task, which may include a particular sensitivity to the stimuli under investigation;
 - b) availability with respect to normal employment;
 - c) motivation (willingness and interest);
 - d) good health (including the absence of specific allergies or treatment with medications) and good dental and general hygienic condition.

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

4.5 Material to be tested

The nature of the product to be tested determines the experimental protocol of the test, and may also have an influence on the type of test that is required to satisfy the test objectives. For example, a protocol in which foods are to be consumed hot will need to take into account the cooling rate of the product and the likely effect on sensory attributes, and the changes in sensory attributes that may occur in keeping the product hot prior to testing.

Methods of preparation and presentation of samples should be appropriate for the product and to the problem concerned.

EXAMPLE 1 A product that is normally consumed hot should be prepared in the usual manner and tested hot; however, elevated temperatures may be used in some circumstances to increase the ease with which some flavours can be evaluated.

EXAMPLE 2 A product that is normally consumed in discrete pieces should not be homogenized in order to retain textural characteristics. Care is needed, however, to ensure maximum uniformity between sub-samples for each assessor; this includes similar portion size and uniformity of composition.

General principles for product sampling (in accordance with International Standards relating to the product under test) should be applied for test samples. In all cases, documentation of sample identification codes or