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**Milk and milk products — Sensory  
analysis —**

Part 1:

**General guidance for the recruitment,  
selection, training and monitoring of  
assessors**

iTeh STANDARD PREVIEW

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*Lait et produits laitiers — Analyse sensorielle —*

*Partie 1: Lignes directrices générales pour le recrutement, la sélection,  
l'entraînement et le contrôle des sujets*

ISO 22935-1:2009

<https://standards.iteh.ai/catalog/standards/sist/ad9ad90b-ef58-4a5e-9868-18c55ebec614/iso-22935-1-2009>



Reference numbers  
ISO 22935-1:2009(E)  
IDF 99-1:2009(E)

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Published in Switzerland

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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 22935-1|IDF 99-1 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products*, and the International Dairy Federation (IDF). It is being published jointly by ISO and IDF.

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ISO 22935|IDF 99 consists of the following parts, under the general title *Milk and milk products — Sensory analysis*:  
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- *Part 1: General guidance for the recruitment, selection, training and monitoring of assessors*  
ISO 22935-1:2009  
<https://standards.iteh.ai/catalog/standards/sist/ad9ad90b-ef58-4a5e-9868-18c55ebc614/iso-22935-1-2009>
- *Part 2: Recommended methods for sensory evaluation*
- *Part 3: Guidance on a method for evaluation of compliance with product specifications for sensory properties by scoring*

## Foreword

**IDF (the International Dairy Federation)** is a non-profit organization representing the dairy sector worldwide. IDF membership comprises National Committees in every member country as well as regional dairy associations having signed a formal agreement on cooperation with IDF. All members of IDF have the right to be represented on the IDF Standing Committees carrying out the technical work. IDF collaborates with ISO in the development of standard methods of analysis and sampling for milk and milk products.

Draft International Standards adopted by the Action Teams and Standing Committees are circulated to the National Committees for voting. Publication as an International Standard requires approval by at least 50 % of the IDF National Committees casting a vote.

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

ISO 22935-1|IDF 99-1 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products*, and the International Dairy Federation (IDF). It is being published jointly by IDF and ISO.

All work was carried out by the Joint ISO-IDF Action Team on *Statistics and sampling* of the Standing Committee on *Quality assurance, statistics of analytical data and sampling* under the aegis of its project leader: Ms. V. Jones (NZ).

ISO 22935|IDF 99 consists of the following parts, under the general title *Milk and milk products — Sensory analysis*:

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- *Part 1: General guidance for the recruitment, selection, training and monitoring of assessors*
  - *Part 2: Recommended methods for sensory evaluation*
  - *Part 3: Guidance on a method for evaluation of compliance with product specifications for sensory properties by scoring*

This edition of ISO 22935-1|IDF 99-1, together with ISO 22935-2|IDF 99-2 and ISO 22935-3|IDF 99-3, cancels and replaces IDF 99C:1997, which has been technically revised.

## Introduction

The purpose of ISO 22935|IDF 99 (all parts) is to give guidance on methodology for sensory analysis and the use of a common nomenclature of terms for milk and milk products.

To achieve that, ISO 22935|IDF 99 has been divided into the three parts listed in the forewords.

ISO 6658 should be consulted for an overview of sensory methods other than the one provided in ISO 22935-3|IDF 99-3.

Evaluation of labelling and packaging is not covered by ISO 22935|IDF 99 (all parts).

The principles described are largely derived from various International Standards on the topic.

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# Milk and milk products — Sensory analysis —

## Part 1:

# General guidance for the recruitment, selection, training and monitoring of assessors

## 1 Scope

This part of ISO 22935|IDF 99 gives general guidance for the recruitment, selection, training, and monitoring of assessors for sensory analysis of milk and milk products.

It specifies criteria for the selection, and procedures for the training and monitoring, of selected assessors and expert sensory assessors for milk and milk products. It supplements the information given in ISO 8586-1 and parts of ISO 8586-2 that deal with expert assessors.

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## 2 Normative references (standards.iteh.ai)

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 4120, *Sensory analysis — Methodology — Triangle test*

ISO 4121, *Sensory analysis — Guidelines for the use of quantitative response scales*

ISO 5492:2008, *Sensory analysis — Vocabulary*

ISO 5496, *Sensory analysis — Methodology — Initiation and training of assessors in the detection and recognition of odours*

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

ISO 8586-1:1993, *Sensory analysis — General guidance for the selection, training and monitoring of assessors — Part 1: Selected assessors*

ISO 8586-2, *Sensory analysis — General guidance for the selection, training and monitoring of assessors — Part 2: Expert sensory assessors*

ISO 8587, *Sensory analysis — Methodology — Ranking*

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

ISO 22935-2|IDF 99-2:2009, *Milk and milk products — Sensory analysis: Part 2: Recommended methods for sensory evaluation*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4121, ISO 5492, ISO 5496, ISO 6658, ISO 8586-1, ISO 8586-2 and ISO 8589 and the following apply.

#### 3.1

##### **sensory analysis**

science involved with the assessment of the organoleptic attributes of a product by the senses

[ISO 5492:2008, 1.1]

#### 3.2

##### **selected assessor**

assessor chosen for his/her ability to perform a sensory test

[ISO 5492:2008, 1.6]

#### 3.3

##### **expert sensory assessor**

selected assessor with a demonstrated sensory sensitivity and with considerable training and experience in sensory testing, who is able to make consistent and repeatable sensory assessments of various products

[ISO 5492:2008, 1.8]

NOTE Examples of "various products" are "dairy products".

#### 3.4

##### **sensory panel**

group of assessors participating in a sensory test

[ISO 5492:2008, 1.9]

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#### 3.5

##### **scoring**

evaluation of a product (or of attributes of a product) by assigning numbers that have some mathematical relationship to the product or attributes being evaluated

[ISO 5492:2008, 4.7]

#### 3.6

##### **product specification**

document stating requirements of a product

NOTE Adapted from ISO 9000:2005<sup>[2]</sup>.

#### 3.7

##### **classification**

method of sorting into categories

[ISO 5492:2008, 4.5]

#### 3.8

##### **attribute**

perceptible characteristic

[ISO 5492:2008, 1.3]



### 3.9

#### **appearance**

all the visible attributes of a substance or object

[ISO 5492:2008, 3.1]

NOTE For a dairy product, the visual attributes are both internal and external, and include shape, colour, and openings.

### 3.10

#### **consistency**

mechanical attribute detected by stimulation of the tactile or visual receptors

[ISO 5492:2008, 3.49]

### 3.11

#### **mouthfeel**

mixed experience derived from sensations in the mouth that relate to physical or chemical properties of a stimulus

[ISO 5492:2008, 3.62]

### 3.12

#### **fingerfeel**

mixed experience derived from sensations on the fingers that relate to physical properties of a stimulus

### 3.13

#### **flavour**

complex combination of the olfactory, gustatory and trigeminal sensations perceived during tasting

[ISO 5492:2008, 3.20]

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### 3.14

#### **odour**

sensation perceived by means of the olfactory organ in sniffing certain volatile substances

[ISO 5492:2008, 3.18]

## 4 Recruitment

Assessors can be recruited from within a company (laboratory staff, production staff, administration staff, etc.), who are not involved with project work, or from outside a company. Outside assessors can be recruited by advertisement or by word of mouth. The panel candidates should have an understanding of the amount of time that will be required for the screening process and for actual panel work. A large enough pool of available candidates should be screened in order to have enough assessors available to select from when forming a panel. The trainee assessor should have satisfactory personal qualifications for assessments and should be pre-selected by:

- a) the use of screening tests to assess the ability of candidates to perceive, discriminate, and describe sensory attributes;
- b) a general understanding of the concepts of sensory evaluation;
- c) a general liking or interest in dairy products.

## 5 Screening

### 5.1 Screening form and requirements

#### 5.1.1 General

Potential applicants should go through two forms of screening via an interview and sensory screening tests. During the interview, the applicants should fill out a pre-screening form which indicates the times that they are available for panels and any health issues they may have: arthritis which could interfere with the evaluation of product texture in-hand (fingerfeel), lactose intolerance, wearing of dentures, smoking status, and any other issues of concern.

Flavoured water solutions and dairy products should be used to indicate if the potential assessor can recognize specific tastes or flavours at different intensities. The potential evaluator shall be able to detect certain flavours within complex dairy products. The following three sessions each take assessors approximately 45 min to 1 h to complete. These screening exercises are suggestions only and may be adapted to the application area of the assessors. The sessions described in 5.1.2 to 5.1.4 may be broken down into smaller or larger sessions depending on how much time is available.

#### 5.1.2 Session 1 — Basic odour and taste recognition

Test	Reference	Result
1	5.3.1	Odour recognition
2	5.3.2	Basic taste recognition
3	5.3.3, Table 5	Ranking of basic taste — sweet
4	5.3.3, Table 6	Ranking of basic taste — sour
5	5.3.3, Table 7	Ranking of basic taste — salty
6	5.3.3, Table 8	Ranking of basic taste — bitter

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#### 5.1.3 Session 2 — Milk powder and cream products

Test	Reference	Result
7	5.3.4, Table 11	Triangle test — milk powder
8	5.3.4, Table 12	Triangle test — butter
9	5.3.4, Table 12	Triangle test — salted butter
10	5.3.5.2	Round table discussion — cream evaluation
11	5.3.3, Table 9	Ranking of texture — body/creaminess
12	5.3.4, Table 11	Triangle test — aged milk powder

#### 5.1.4 Session 3 — Cheese

Test	Reference	Result
13	5.3.4, Table 13	Triangle test — cheese
14	5.3.5.1	Round table discussion — cheese evaluation
15	5.3.4, Table 13	Triangle test — bitter cheese
16	5.3.4, Table 14	Triangle test — cheese firmness
17	5.3.4, Table 14	Triangle test — cheese smoothness

Mark each section as per each marking schedule. Other examples of screening exercises can be found in ISO 8586-1.

## 5.2 Preparation of test samples for screening

5.2.1 If possible, prepare test samples on the day of the evaluation.

5.2.2 For screening purposes, it is easier to serve test samples in the same order to all assessors.

5.2.3 If appropriate, use test sample questionnaires for all screening exercises found in ISO 4120 (triangle test), ISO 8587 (ranking test), ISO 6658 and ISO 4121 (scales).

## 5.3 Screening tests, materials and methods

The screening tests, materials and methods presented in this section are recommendations only. They can be adapted to suit the needs of an individual company.

### 5.3.1 Odour recognition

Follow the instructions outlined in ISO 8586-1:1993, 4.4.6.1 for details on how to prepare the test samples and conduct this test. Table 1 suggests other aromas that can be used.

Table 1 — Examples of olfactory materials for odour description test

Blind code (example)	Sample Preparation
981	Citronella oil (lemon, cleaning fluid)
194	Orange
229	Caramel
371	Butyric acid
926	Acetic acid
174	Ammonia
746	(Z)-hex-3-en-1-ol <sup>a</sup>
831	Oct-1-en-3-ol
556	Vanilla

<sup>a</sup> In older literature, known as *cis*-hex-3-en-1-ol.

Candidates are graded according to performance, as shown in Table 2. For each sample, a total of three points can be achieved. If the assessor uses words other than those listed in Table 2, score appropriately.

Table 2 — Marking schedule for odour recognition

Sample	Correct Answer		
	3 points	2 points	1 point
Citronella oil	Citronella oil	Lemony, cleaning fluid	Citrus, fruity
Orange	Orange	Lemon	Citrus, fruity
Caramel	Caramel	Vanilla, malt, toasted	Sweet
Butyric acid	Rancid butter	Parmesan cheese	Vomit, baby burp
Acetic acid	Acetic acid	Vinegar	Sour/off milk
Ammonia	Ammonia	Cleaning fluid, urine	Pungent
(Z)-hex-3-en-1-ol	Green grass	Green beans	Green vegetable
Oct-1-en-3-ol	Mushroom	Cellar, musty	Mouldy
Vanilla	Vanilla	Custard, dessert	Sweets, candy