

Sensory analysis — Methodology — Duo-trio test

ICS 67.240

National foreword

This British Standard is the UK implementation of EN ISO 10399:2010. It is identical to ISO 10399:2004. It supersedes BS ISO 10399:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AW/12, Sensory analysis.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Sensorische Analyse - Prüfverfahren - Duo-Trio-Prüfung (ISO 10399:2004)

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Foreword

The text of ISO 10399:2004 has been prepared by Technical Committee ISO/TC 34 “Food products” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10399:2010.

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of an identical text or by endorsement, at the latest by August 2010, and conflicting national standards shall be withdrawn at the latest by August 2010.

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Endorsement notice

The text of ISO 10399:2004 has been approved by CEN as a EN ISO 10399:2010 without any modification.

Contents

Page

1	Scope.....	1
2	Normative references	1
3	Terms and definitions	2
4	Principle	2
5	General test conditions and requirements	3
6	Assessors	3
6.1	Qualification	3
6.2	Number of assessors.....	4
7	Procedure.....	4
8	Analysis and interpretation of results	5
8.1	When testing for a difference	5
8.2	When testing for similarity	5
9	Test report.....	6
10	Precision and bias	6
	Annex A (normative) Tables	7
	Annex B (informative) Examples	12
	Bibliography	19

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1 Scope

This International Standard describes a procedure for determining whether a perceptible sensory difference or similarity exists between samples of two products. The method is a forced-choice procedure. The method is applicable whether a difference exists in a single sensory attribute or in several attributes.

The method is statistically less efficient than the triangle test (described in ISO 4120) but is easier to perform by the assessors.

The method is applicable even when the nature of the difference is unknown [i.e. it determines neither the size nor the direction of difference between samples, nor is there any indication of the attribute(s) responsible for the difference]. The method is applicable only if the products are fairly homogeneous.

The method is effective for

- a) determining that
 - either a perceptible difference results (duo-trio testing for difference), or
 - a perceptible difference does not result (duo-trio testing for similarity) when, for example, a change is made in ingredients, processing, packaging, handling or storage;
- b) or for selecting, training and monitoring assessors.

Two forms of the method are described:

- the constant-reference technique, used when one product is familiar to the assessors (e.g. a sample from regular production), and
- the balanced-reference technique, used when one product is not more familiar than the other.

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 5492:1992, *Sensory analysis — Vocabulary*

ISO 8589:1988, *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

alpha-risk

α -risk

probability of concluding that a perceptible difference exists when one does not

NOTE This is also known as Type I error, significance level or false positive rate.

3.2

beta-risk

β -risk

probability of concluding that no perceptible difference exists when one does

NOTE This is also known as Type II error or false negative rate.

3.3

difference

situation in which samples can be distinguished based on their sensory properties

NOTE The proportion of assessments in which a perceptible difference is detected between the two products is given the symbol p_d .

3.4

product

material to be evaluated

3.5

sample

unit of product prepared, presented and evaluated in the test

3.6

sensitivity

general term used to summarize the performance characteristics of the test

NOTE In statistical terms, the sensitivity of the test is defined by the values of α , β and p_d .

3.7

similarity

situation in which any perceptible differences between the samples are so small that the products can be used interchangeably

3.8

triad

those three samples given to an assessor in the duo-trio test

NOTE In the duo-trio test, one sample is labelled as the reference, the other two are marked with different codes. One of the coded samples is the same product as the reference; the other coded sample is the other product in the test.

4 Principle

The number of assessors is chosen based on the sensitivity desired for the test. (See 6.2 and the discussion in A.3.)

Assessors receive a set of three samples (i.e. a triad), one sample of which is labelled as a reference and the other two samples have different codes. The assessors are informed that one of the coded samples is the