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Sensory analysis — Methodology — Duo-trio test

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 12, *Sensory analysis*, in collaboration with the European Committee for Standardization (CEN), in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 10399:2017), which has been technically revised.

The main changes are as follows:

— the document has been generalized beyond food and beverage applications;

— the description of how to test for similarity has been updated to best practices and some definitions and descriptions have been amended to also encompass this scenario;

— basic information on how to use the Thurstonian model in addition to the previously emphasized guessing model has been added;

— the principle has been expanded slightly to enhance clarity;

— R code has been provided in the tables of Annex A as one alternative option to derive exact results, which is exemplified in the examples in Annex B;

— the example in Clause B.2 has been modified to reflect state-of-the-art testing for similarity, whereas the example in Clause B.3 has been dropped as the confidence interval approach is now embedded into the earlier examples;

— the references have been updated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Sensory analysis — Methodology — Duo-trio test

1 Scope

This document specifies 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:

   1) a perceptible difference results (duo-trio testing for difference); or

   2) a meaningful 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) 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);

— the balanced-reference technique, used when one product is not more familiar than the other.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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*

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.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

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