AS 2542.2.2:2014
ISO 4120:2004

AS 2542.2.2:2014

Australian STANDARD

Sensory analysis

Part 2.2: Methodology—Triangle test

STANDARDS Australia

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- Australian Institute of Food Science and Technology
- Australian Society of Cosmetic Chemists
- Brewers Association of Australia and New Zealand
- Deakin University
- Defence Science and Technology Organisation
- Department of Agriculture, Fisheries and Forestry Qld
- Food Technology Association of Australia
- National Association of Testing Authorities Australia
- National Measurement Institute
- University of Queensland

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Sensory analysis

Part 2.2: Methodology—Triangle test

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PREFACE

This Standard was prepared by Standards Australia Committee FT-022, Sensory Analysis of Food, to supersede AS 2542.2.2—2005, *Sensory analysis*, Method 2.2: *Specific methods—Triangle test*.

The objective of this Standard is to provide 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.

This Standard is identical with, and has been reproduced from ISO 4120:2004, *Sensory analysis—Methodology—Triangle test.*

In reference to Table A.1, the exact p level for α can be calculated using binomial statistics. For example, using Microsoft Excel, the p value for α = 1 − BINOMDIST (x − 1, n, ⅓, true) for x correct responses from n panellists.

In reference to Table A.2, the exact p level for β can be calculated using binomial statistics. For example, using Microsoft Excel, the p value for β = BINOMDIST (x, n, p_d + (1 − p_d) (⅓), TRUE) for x correct responses from n panellists and p_d = maximum allowable proportion of discriminators expressed as decimal, i.e. 10% = 0.10. Note that for similarity testing you accept the null hypothesis of no difference with 100 (1 − β)% confidence.

Hence, if the p value (for β) is equal to 0.05, you conclude that the two samples are similar with 95% confidence.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'This International Standard' should read 'this Australian Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian Standards, as follows:

Reference to International Standard		*Australian Standard*	
ISO		AS	
5492	Sensory analysis—Vocabulary	2542	Sensory analysis
		2542.3	Part 3: Vocabulary

Only normative references that have been adopted as Australian Standards have been listed.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

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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 more efficient than the duo-trio test (described in ISO 10399), but has limited use with products that exhibit strong carryover and/or lingering flavours.

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 (triangle testing for difference), or

   — a perceptible difference does not result (triangle 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.

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.

