

Australian Standard[®]

Sensory analysis

**Method 2.2: Specific methods—Triangle
test**



This Australian Standard® was prepared by Committee FT-022, Sensory Analysis. It was approved on behalf of the Council of Standards Australia on 16 September 2005. This Standard was published on 12 October 2005.

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- Australian Associated Brewers
 - Australian Food and Grocery Council
 - Australian Institute of Food Science and Technology Limited
 - Australian Paint Manufacturers' Federation
 - Australian Society of Cosmetic Chemists
 - Australian Wine and Brandy Corporation
 - Department of Primary Industries and Fisheries Queensland
 - Food Science Australia
 - Food Technology Association of Victoria
 - National Association of Testing Authorities Australia
 - RMIT University
-

This Standard was issued in draft form for comment as DR 05331.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Method 2.2: Specific methods—Triangle test

Originated as AS 2542.2.2—1983.
Second edition 2005.
Reissued incorporating Amendment No. 1 (February 2008).

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Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia
ISBN 0 7337 6942 X

PREFACE

This Standard was prepared by the Standards Australia Committee FT-022, Sensory Analysis to supersede AS 2542.2.2—1983, *Sensory analysis of foods, Part 2: Specific methods—Triangle test*.

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

This Standard incorporates Amendment No. 1 (February 2008). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

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.

A1 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 $\alpha = 1 - \text{BINOMDIST}(x - 1, n, \frac{1}{3}, \text{true})$ 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 $\beta = \text{BINOMDIST}(x, n, p_d + (1 - p_d) * (\frac{1}{3}), \text{TRUE})$ 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:

- (i) Its number appears on the cover and title page while the international standard number appears only on the cover
- (ii) In the source text ‘this International Standard’ should read ‘this Australian Standard’.
- (iii) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>	<i>Australian Standard</i>
ISO	AS
5492 Sensory analysis—Vocabulary	2542 Sensory analysis of foods
	2542.3 Part 3: Glossary of terms
8589 Sensory analysis—General guidance for the design of test rooms	—

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.

CONTENTS

	<i>Page</i>
1	Scope..... 1
2	Normative references 1
3	Terms and definitions..... 1
4	Principle 2
5	General test conditions and requirements..... 3
6	Assessors 3
6.1	Qualification 3
6.2	Number of assessors..... 3
7	Procedure..... 4
8	Analysis and interpretation of results 4
8.1	When testing for a difference 4
8.2	When testing for similarity 5
9	Test report..... 5
10	Precision and bias 5
Annex A	(normative) Tables 6
Annex B	(informative) Examples..... 10
Bibliography 15

AUSTRALIAN STANDARD

Sensory analysis

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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.