

Australian/New Zealand Standard™

**Guide to determining the equivalence of
food microbiology test methods**

Part 4: Antibiotic tests



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Australia New Zealand Food Authority
 Australian Chamber of Commerce and Industry
 Australian Food and Grocery Council
 Australian Government Analytical Laboratories
 Australian Industry Group
 Australian Institute of Food Science and Technology
 Australian Poultry Industries Association
 Commonwealth Scientific and Industrial Research Organization
 Department of Defence (Australia)
 Department of Agriculture, Fisheries and Forestry (Commonwealth)
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 Food Science Australia
 Food Technology Association of Victoria
 National Association of Testing Authorities Australia
 Dairy Corporation
 NSW Health Department
 Queensland Health
 RMIT University
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 University of Queensland
 Western Australian Centre for Pathology and Medical Research

Additional interests participating in preparation of Standard:

Dairy Industry Quality Centre

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee FT/4, Food Microbiology.

The objective of this Standard is to provide guidance on determining the equivalence of microbiological test methods. This Part covers framework and basis for the evaluation/validation of microbial inhibitor tests, which allows the comparison of data evaluated for different tests.

This Standard is one of a series of Guides covering determination of the equivalence of food microbiology test methods. The other three Parts cover qualitative tests, quantitative tests and confirmation tests.

This Guide was based on the document ‘Checklist for the standardized description of microbial inhibitor tests’, version 2: August 1995, of IDF Group E503, Antibiotics.

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FOREWORD

This Standard is intended to give the framework and basis for the evaluation/validation of microbial inhibitor tests, which allows the comparison of data evaluated for different tests.

The parameters outlined in the following text do not need to be evaluated completely for every test, but depend on—

- (a) the field of application of the test under study, e.g. screening or reference method;
- (b) the information needed, e.g. introduction of a new substance with fixed maximum residue limit (MRL); and
- (c) the detection pattern, e.g. sensitivity of the test microorganism to a broad or small variety of anti-infectiva.

In other words ‘the terms of reference’ in the negotiations between producer and user of a certain test kit should be agreed upon in the frame of this guidance omitting, for example, those aspects which do not have actual importance for the intended field of application. A general ‘approval’ without any special field of application in mind requires a complete description in line with this guidance.

With respect to evaluation or validation of this group of methods in many cases there exists a general disadvantage. The results of these tests are evaluated visually in a subjective way in very few steps—negative, questionable, positive—by comparison with reference samples (‘positive/negative controls’). In the case of microbial inhibitor tests with indicator, the kind of colour change of the indicator can depend on the mode of action of the antimicrobial present, which can make a clear definition of ‘positive’ or ‘negative’ test results difficult. Test interpretation in a few steps also means that small differences or minor colour developments, which might be of importance in a validation program, need high experimental expenditure.