

INTERNATIONAL STANDARD

**ISO
7402**

Second edition
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Microbiology — General guidance for the enumeration of *Enterobacteriaceae* without resuscitation — MPN technique and colony-count technique

*Microbiologie — Directives générales pour le dénombrement sans
revivification des Enterobacteriaceae — Technique NPP et méthode par
comptage des colonies*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 7402 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Sub-Committee SC 9, *Microbiology*.

This second edition cancels and replaces the first edition (ISO 7402:1985), which has been technically revised.

Annexes A and B form an integral part of this International Standard.

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Introduction

This International Standard is intended to provide general guidance for the examination of products not dealt with by existing International Standards and to be taken into account by organizations preparing microbiological methods of test for application to foods or to animal feeding stuffs. Because of the large variety of products within this field of application, these guidelines may not be appropriate in every detail for certain products, and for some other products it may be necessary to use different methods. Nevertheless, it is hoped that in all cases every attempt will be made to apply the guidelines provided as far as possible and that deviations from them will only be made if absolutely necessary for technical reasons.

When this International Standard is next reviewed, account will be taken of all information then available regarding the extent to which the guidelines have been followed and the reasons for deviation from them in the case of particular products.

The harmonization of test methods cannot be immediate and, for certain groups of products, International Standards and/or national standards may already exist that do not comply with these guidelines. In cases where International Standards already exist for the product to be tested, they should be followed, but it is hoped that when such standards are reviewed they will be changed to comply with this International Standard so that eventually the only remaining departures from these guidelines will be those necessary for well-established technical reasons.

For any particular product, the method to be used will be specified in the International Standard dealing with that product.

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Microbiology — General guidance for the enumeration of *Enterobacteriaceae* without resuscitation — MPN technique and colony-count technique

1 Scope

This International Standard gives general guidance for the enumeration of *Enterobacteriaceae* present in products intended for human consumption or animal feeding stuffs:

- by calculation of the most probable number (MPN) after incubation at 35 °C or 37 °C in liquid medium, or
- by counting colonies in a solid medium after incubation at 35 °C or 37 °C.

The temperature used is to be the subject of agreement between the parties concerned, and is to be stated in the test report.

NOTE 1 In the case of frozen foods, an incubation temperature of 30 °C is preferred when the aim of the enumeration is technological.

For low numbers, the MPN method is preferable, otherwise the colony-count method is preferred.

This International Standard does not include resuscitation procedures and the results should not, therefore, be related to criteria or specifications based on the assumption that resuscitation has been carried out.

A limitation on the applicability of this International Standard is imposed by the susceptibility of the methods to a large degree of variability. The methods should be used and the results interpreted in the light of the information given in 10.3.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards

are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6887:1983, *Microbiology — General guidance for the preparation of dilutions for microbiological examination*.

ISO 7218:1985, *Microbiology — General guidance for microbiological examinations*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 *Enterobacteriaceae*: Microorganisms which ferment glucose and show a negative oxidase reaction when the test is carried out according to the method specified.

3.2 count of *Enterobacteriaceae*: The number of *Enterobacteriaceae* found per millilitre or per gram of the test sample when the test is carried out according to the method specified.

4 Principle

4.1 Preparation of dilutions

Preparation of decimal dilutions from the test sample.

4.2 Enumeration of *Enterobacteriaceae*

4.2.1 Most probable number (MPN) technique

NOTE 2 This technique is recommended when the number sought is expected to be in the range 1 to 100 per millilitre or per gram of the test sample.