

Methods for

Microbiological examination of food and animal feeding stuffs —

Part 3: Enumeration of coliforms —
Most probable number technique

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Agriculture and Food Standards Policy Committee (AFC/-) to Technical Committee AFC/9, upon which the following bodies were represented:

- Association of Public Analysts
- British Food Manufacturing Industries Research Association
- British Poultry Federation Limited
- Campden Food and Drink Research Association
- Department of Agriculture Northern Ireland
- Department of Health
- Department of Trade and Industry (Laboratory of the Government Chemist)
- Flour Milling and Baking Research Association
- Food and Drink Federation
- Fruit and Vegetable Canners' Association
- Institute of Brewing
- Joint Committee of the Milk Marketing Board and the Dairy Trade Federation
- Ministry of Agriculture, Fisheries and Food
- Natural Resources Institute
- Pet Food Manufacturers' Association
- Public Health Laboratory Service
- Society for Applied Bacteriology
- United Kingdom Association of Frozen Food Producers
- United Kingdom Dairy Association
- University of Reading

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National foreword

This Part of BS 5763-3 has been prepared under the direction of the Agriculture and Food Standards Policy Committee. It is identical with ISO 4831:1991 “Microbiology — General guidance for the enumeration of coliforms — Most probable number technique”, published by the International Organization for Standardization (ISO), in the preparation of which the United Kingdom played a full part. This revision supersedes the 1979 edition of BS 5763-3 which is withdrawn and from which it differs in that incubation may be carried out at 30 °C, 35 °C, or 37 °C, as appropriate, rather than at 30 °C only. Other technical requirements have been generally updated in line with current microbiological practice.

Cross-references

International standard	Corresponding British Standard
	BS 5763 Methods for microbiological examination of food and animal feeding stuffs
ISO 4832:1991	Part 2:1991 Enumeration of coliforms — Colony count technique (Identical)
ISO 6579:1990	Part 4:1990 Detection of <i>Salmonella</i> (Identical)
ISO 6887:1983	Part 6:1983 Prepatation of dilutions (Identical)
ISO 7218:1985	Part 0:1986 General laboratory practices (Identical)

Additional information. With reference to 5.3 and 5.4, water complying with grade 3 of BS 3978 “Specification for water for laboratory use” is suitable.
A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.
This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Introduction

0.1 This International Standard is intended to provide general guidance for the examination of products not dealt with by existing International Standards and for reference for bodies 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 for some products in every detail, 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.

0.2 The technique described in this International Standard is less precise than that described in ISO 4832:1990, *Microbiology — General guidance for the enumeration of coliforms — Colony count technique*, but allows a microbiological examination to be carried out on a larger test portion, thus permitting a lower number of coliforms per gram or per millilitre of product to be detected. Moreover, since the definition of “coliforms” adopted in the two documents is different, the micro-organisms enumerated are not necessarily the same.

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

0.3 For the purposes of a practicable test method, the definition of “coliforms” given in clause 3 and used as the basis for the procedure is not necessarily identical with corresponding definitions given in other published texts. A proportion of strains of the micro-organisms described in other published texts as “coliforms” (including *Escherichia coli*) fail to produce enough gas to be detectable by use of a Durham tube (i.e. “anaerogenic strains”). Therefore, the method described in this International Standard will not detect all strains of the micro-organisms referred to in other publications as “(presumptive) coliforms” (e.g. certain strains of *Citrobacter*, *Enterobacter*, *Klebsiella*). (See Edwards, P.R. and Ewing, W.H. *Identification of Enterobacteriaceae*, 3rd edition, Burgess Publishing Company, Minneapolis, Minnesota, USA, 1972.)

1 Scope

This International Standard gives general guidelines for the enumeration of coliforms present in products intended for human consumption or feeding of animals, by means of the calculation of the most probable number (MPN) after incubation at 30 °C, 35 °C or 37 °C in a liquid medium, this temperature forming the subject of agreement between the parties concerned.

NOTE 1 The incubation temperature of 30 °C is used when the aim of the enumeration is technological; the temperature of 35 °C or 37 °C is used when the aim of the enumeration is more in the field of public health.

A limitation on the applicability of this International Standard is imposed by the method's susceptibility to a large degree of variability. The method should be applied and the results interpreted in the light of the information given in 10.4.

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 6579:1990, *Microbiology — General guidance on methods for the detection of Salmonella*.

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

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