Australian Standard®

Food microbiology

Method 14.1: Microbiology of food and animal feeding stuffs—General requirements and guidance for microbiological examinations (ISO 7218:2007, MOD)

PREFACE

This Standard was prepared by the Standards Australia Committee, FT-024, Food Products and Subcommittee FT-024-01, Food Microbiology (Constituted), to supersede AS 5013.14, *Food microbiology*, Method 14: *Microbiology of food and animal feeding stuffs—General rules for microbiological examinations*.

This Standard is an adoption with national modifications and has been reproduced from ISO 7218:2007, *Microbiology of food and animal feeding stuffs—General requirements and guidance for microbiological examinations*.

The objective of this revision is to adopt the current edition of ISO 7218. However, inconsistencies exist between ISO 7218 and other ISO Standards with regard to specifying one plate versus specifying duplicate plates, when performing quantitative counts. Therefore, Australian technical variations have been made to the following Clauses of ISO 7218:

(a) Clause 10.2.2, Number of Petri dishes per dilution.

(b) Clause 10.3.2, Expression of results.

(c) Clause 10.5.6.2.2, Tables for multiple-dilution systems: three successive dilutions.

These variations, which are necessary for Australian conditions, are listed in Appendix ZZ, which is added at the end of the source text.

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

(i) In the source text ‘this International Standard’ should read ‘this Australian Standard’.

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

(iii) Substitute ‘mL’ for ‘ml’ wherever it appears.

In Clause 8.2, Transport, the sample temperatures specified are guidelines. The temperature of the sample at the time of receipt, and the time of sampling should be recorded. This information should be taken into account when deciding on the suitability of the sample for testing.

The laboratory should have a clearly defined quality control system to ensure the apparatus, culture media, reagents and technique are suitable for the test. The use of positive controls is part of this system.

STANDARDS Australia

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

Reference to International Standard		*Australian Standard*	
ISO		AS	
6887	Microbiology—General guidance—Preparation of dilutions for microbiological examination (series)	5013	Food microbiology
		5013.11	Method 11.1: Microbiology of food and animal feeding stuffs—Preparation of test samples, initial suspension and decimal dilutions for microbiological examination (series)

Other International Standards referenced in the source document have not been adopted as Australian Standards.

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

CONTENTS

INTRODUCTION

When conducting microbiological examinations, it is especially important that

— only those microorganisms which are present in the samples are isolated and enumerated;

— the microorganisms do not contaminate the environment.

In order to achieve this, it is necessary to pay attention to personal hygiene and to use working techniques which ensure, as far as possible, exclusion of extraneous contamination.

Since, in this International Standard, it is possible to give only a few examples of the precautions to be taken during microbiological examinations, a thorough knowledge of the microbiological techniques and of the microorganisms involved is essential. It is important that the examinations are conducted as accurately as possible, including monitoring and recording aspects that may affect results and calculation of the number of microorganisms and the uncertainty of the results.

Ultimately, it is the responsibility of the head of the laboratory to judge whether the manipulations are safe and can be considered to be good laboratory practice.

A large number of manipulations can, for example, unintentionally lead to cross-contamination, and the analyst should always verify the accuracy of the results given by his or her technique.

In order to conduct the examinations correctly, it is necessary to take certain precautions when constructing and equipping the laboratory.

Certain precautions must be taken, not only for reasons of hygiene, but also to ensure good reproducibility of the results. It is not possible to specify all the precautions to be taken in all circumstances, but this International Standard at least provides the main measures to be taken when preparing, sterilizing, storing the media, and using the equipment.

If the guidance given in this International Standard is followed, this will also contribute towards maintaining the health and safety of personnel. Additional information on this subject is to be found in the literature listed in the Bibliography.

In order to distinguish the guidance in this International Standard, it has been printed in a different typeface (Times New Roman).

1 Scope

This International Standard gives general requirements and guidance/options intended for three main uses:

— implementation of ISO/TC 34/SC 9 or ISO/TC 34/SC 5 standards for detection or enumeration of microorganisms, named hereafter “specific standards”;

— good laboratory practice for food microbiological laboratories (the purpose is not to detail them in this International Standard, manuals are available for that purpose);

— guidance for accreditation of food microbiological laboratories (this International Standard describes the technical requirements according to Annex B of ISO/IEC 17025:2005 for the accreditation of a microbiological laboratory by national organizations).

The requirements of this International Standard supersede the corresponding ones of existing specific standards.

Additional instructions in the field of molecular biology examinations are specified in ISO 22174.

This International Standard covers examination for bacteria, yeasts and moulds and can be used if supplemented with specific guidance for prions, parasites and viruses. It does not cover the examination for toxins or other metabolites (e.g. amines) from microorganisms.

This International Standard applies to the microbiology of food, animal feeding stuffs, the food production environment and the primary production environment.

The purpose of this International Standard is to help to ensure the validity of food microbiology examinations, to assist in ensuring that the general techniques used for conducting these examinations are the same in all laboratories, to help achieve homogeneous results in different laboratories, and to contribute towards the safety of the laboratory personnel by preventing risks of infection.

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 835 (all parts), *Laboratory glassware — Graduated pipettes*

ISO 6887 (all parts), *Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination*

ISO 8199, *Water quality — General guidance on the enumeration of micro-organisms by culture*

ISO 8261, *Milk and milk products — General guidance for the preparation of test samples, initial suspensions and decimal dilutions for microbiological examination*