

This is a preview of "ISO 7218:2007". [Click here to purchase the full version from the ANSI store.](#)

Third edition
2007-08-15

Microbiology of food and animal feeding stuffs — General requirements and guidance for microbiological examinations

*Microbiologie des aliments — Exigences générales et
recommandations*



Reference number
ISO 7218:2007(E)

© ISO 2007

This is a preview of "ISO 7218:2007". [Click here to purchase the full version from the ANSI store.](#)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2007

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO 7218:2007". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

Foreword.....	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Premises	2
3.1 General.....	2
3.2 Safety considerations.....	2
3.3 Laboratory design.....	2
3.4 Laboratory areas.....	3
3.5 Layout and fittings of the premises	4
3.6 Cleaning and disinfection	5
4 Staff	5
4.1 General.....	5
4.2 Competence	6
4.3 Verification of on-going staff competence.....	6
4.4 Hygiene	6
5 Apparatus and equipment	6
6 Preparation of glassware and other laboratory materials	28
6.1 Preparation	28
6.2 Sterilization/decontamination.....	28
6.3 Disposable equipment and materials	28
6.4 Storage of clean glassware and materials	28
6.5 Management of sterile glassware and materials	29
6.6 Use of decontamination and disinfection	29
6.7 Waste management	29
6.8 Washing	30
7 Preparation and sterilization of culture media	30
8 Laboratory samples.....	30
8.1 Sampling.....	30
8.2 Transport	31
8.3 Receipt	31
8.4 Storage.....	32
8.5 Test portion	32
9 Examination.....	32
9.1 Hygienic precautions during analysis	32
9.2 Preparation of initial suspension and dilutions	34
10 Enumeration	34
10.1 General.....	34
10.2 Enumeration using a solid medium	35
10.3 Calculation and expression of results obtained with solid media	37
10.4 Enumeration of yeasts and moulds.....	43
10.5 Enumeration using a liquid medium.....	44
11 Detection method (qualitative method)	49
11.1 General.....	49
11.2 Principle	50
11.3 Measurement of uncertainty	50

This is a preview of "ISO 7218:2007". [Click here to purchase the full version from the ANSI store.](#)

12	Confirmatory methods	50
12.1	General	50
12.2	Preparation of a pure culture	50
12.3	Gram's stain (modified Hucker technique)	50
12.4	Use of biochemical galleries for identification	52
12.5	Use of nucleic probes for identification	52
12.6	Serological methods	53
13	Test report	53
14	Validation of microbiological methods	54
14.1	Validation of reference methods	54
14.2	Validation of alternative methods	54
14.3	Validation of in-house methods	54
15	Quality assurance of results/quality control of performance	54
15.1	Internal quality control	54
15.2	Reference strains	54
15.3	External quality assessment (proficiency testing)	55
Annex A (informative) Properties of some disinfectants		56
Annex B (normative) Determination of most probable number (MPN)		57
Bibliography		64

This is a preview of "ISO 7218:2007". [Click here to purchase the full version from the ANSI store.](#)

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 7218 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 9, *Microbiology*, in collaboration with CEN Technical Committee CEN/TC 275, *Food analysis — Horizontal methods*.

This third edition cancels and replaces the second edition (ISO 7218:1996), which has been technically revised. It also incorporates the Amendment ISO 7218:1996/Amd.1:2001.

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).