

Water quality - General guidance on the enumeration of micro-organisms by culture

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 8199:2007 sisaldab Euroopa standardi EN ISO 8199:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 22.11.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 8199:2007 consists of the English text of the European standard EN ISO 8199:2007.</p> <p>This document is endorsed on 22.11.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This International Standard presents guidance for carrying out manipulations which are common to each technique for the microbiological examination of water, particularly the preparation of samples, culture media and apparatus. It also describes the various enumeration techniques available and the criteria for the choice of a particular technique. This International Standard is mainly intended for bacteria, yeasts and moulds. Some aspects are also applicable to viruses and parasites.</p>	<p>Scope:</p> <p>This International Standard presents guidance for carrying out manipulations which are common to each technique for the microbiological examination of water, particularly the preparation of samples, culture media and apparatus. It also describes the various enumeration techniques available and the criteria for the choice of a particular technique. This International Standard is mainly intended for bacteria, yeasts and moulds. Some aspects are also applicable to viruses and parasites.</p>
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Võtmesõnad:

ICS 07.100.20

English Version

Water quality - General guidance on the enumeration of micro-organisms by culture (ISO 8199:2005)

Qualité de l'eau - Lignes directrices générales pour le dénombrement des micro-organismes sur milieu de culture (ISO 8199:2005)

Wasserbeschaffenheit - Allgemeine Anleitung zur Zählung von Mikroorganismen durch Kulturverfahren (ISO 8199:2005)

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Foreword

The text of ISO 8199:2005 has been prepared by Technical Committee ISO/TC 147 "Water quality" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 8199:2007 by Technical Committee CEN/TC 230 "Water analysis" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2008, and conflicting national standards shall be withdrawn at the latest by April 2008.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 8199:2005 has been approved by CEN as a EN ISO 8199:2007 without any modification.

Second edition
2005-06-15

Corrected version
2005-12-15

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

*Qualité de l'eau — Lignes directrices générales pour le dénombrement
des micro-organismes sur milieu de culture*



Reference number
ISO 8199:2005(E)

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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.

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 8199 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 4, *Microbiological methods*.

This second edition cancels and replaces the first edition (ISO 8199:1988), which has been technically revised.

This corrected version of ISO 8199:2005 incorporates the following major corrections:

- 5.2.5 [item b), 4th paragraph] moved the 2nd sentence, “If the solution...”, to the paragraph under “Preparation”;
- 8.4.2 (Example 1) replaced “and if V_s is per ml:” with “and if V_s is 1 ml”;
- 8.4.2 (Example 2) replaced “and if V_s is per ml:” with “and if V_s is 100 ml”;
- 8.4.3 (example) replaced “and if V_s is per ml” with “and if V_s is 1 ml”; and
- Bibliography corrected References [14], [16], [17] and [19].

The equations in 8.4.2 and 9.5.2.1 were numbered, which resulted in the following changes:

- 8.4.2 (unnumbered equations) numbered as Equation (3) and Equation (4);
- 8.4.3 (equation) renumbered as Equation (5);
- 8.4.4.1 (equation) renumbered as Equation (6);
- 9.5.2.1 (unnumbered equation) numbered as Equation (7);
- 9.5.2.2 (equation) renumbered as Equation (8);
- 9.6.2 (equation) renumbered as Equation (9); and
- 9.6.3 (equation) renumbered as Equation (10).

Several minor corrections were made, including the following:

- 8.2.3.2 (paragraph 3) replaced “melted” with “molten”;
- 8.4.2 [under Equation (2)] in the explanation of the symbols “ d_1, d_2, \dots, d_i ”, deleted the word “portion”;
- 9.3.3 (last paragraph, 7th line) added “wells” after “ 12×5 ml” and “ 24×3 ml”;
- 9.5.3.2 (example) in the equation at the end of the example, replaced “ $1,61/(5 \text{ ml}) \times 100 \text{ ml}$ ” with “ $(1,61/5 \text{ ml}) \times 100 \text{ ml}$ ”;
- 9.5.3.3 (paragraph 2, 5th line) added parentheses around “3 or 5”;
- A.2.1, A.2.2 replaced “uncertainty in” with “uncertainty of”; and
- A.2.3.1 replaced “an accepted” with “the accepted”; and “error in” with “error of”.

Introduction

Techniques for the isolation and enumeration of micro-organisms, based on their ability to grow on specified culture media, are an important and widely used means of assessing the microbiological quality of water. The purpose of this guide is to gather in a single document the information common to the various enumeration techniques so as to avoid repetition of technical details in individual standards and to facilitate the choice of the technique most suitable for a particular problem.

Water quality — General guidance on the enumeration of micro-organisms by culture

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted in accordance with this International Standard be carried out by suitably trained staff.

1 Scope

This International Standard presents guidance for carrying out manipulations which are common to each technique for the microbiological examination of water, particularly the preparation of samples, culture media and apparatus. It also describes the various enumeration techniques available and the criteria for the choice of a particular technique. This International Standard is mainly intended for bacteria, yeasts and moulds. Some aspects are also applicable to viruses and parasites.

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 3696:1987, *Water for analytical laboratory use — Specification and test methods*

ISO 19458, *Water quality — Sampling for microbiological analysis*

3 Principle

The general principle of these techniques consists of inoculating a known volume of a water sample on or into a culture medium (solid or liquid). It is assumed that after incubation each micro-organism present multiplies, giving either a colony visible directly on the solid medium, or changes in observable properties of the liquid medium. The choice of a particular method depends not only on the nature of the micro-organisms sought, but also on the nature of the water and the reasons for the examination.

4 General

Uniformity of temperatures and (incubation) times: The following accepted ranges of temperatures and times during incubation or storage are applied, when appropriate for the intended target organism, and unless otherwise stated in the specific standard.