

**TOIDUAHELA MIKROBIOLOOGIA. MIKROORGANISMIDE
LOENDAMISE HORISONTAALNE MEETOD. OSA 1:
KOLOONIAATE LOENDAMINE SÜGAVKÜLVI TEHNIKAT
KASUTADES TEMPERATUURIL 30 °C**

**Microbiology of the food chain - Horizontal method for
the enumeration of microorganisms - Part 1: Colony
count at 30 °C by the pour plate technique
(ISO 4833-1:2013 + ISO 4833-1:2013/Amd 1:2022)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 4833-1:2013 +A1:2022 sisaldab Euroopa standardi EN ISO 4833-1:2013 ja selle muudatuse A1:2022 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 4833-1:2013 +A1:2022 consists of the English text of the European standard EN ISO 4833-1:2013 and its amendment A1:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 04.09.2013, muudatus A1 12.01.2022.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 04.09.2013, for A1 12.01.2022.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega $\boxed{A1}$ $\langle A1 \rangle$. Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags $\boxed{A1}$ $\langle A1 \rangle$. The standard is available from the Estonian Centre for Standardisation and Accreditation.

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English Version

Microbiology of the food chain - Horizontal method for the
enumeration of microorganisms - Part 1: Colony count at
30 °C by the pour plate technique
(ISO 4833-1:2013 + ISO 4833-1:2013/Amd 1:2022)

Microbiologie de la chaîne alimentaire - Méthode
horizontale pour le dénombrement des micro-
organismes - Partie 1: Comptage des colonies à 30 °C
par la technique d'ensemencement en profondeur
(ISO 4833-1:2013 + ISO 4833-1:2013/Amd 1:2022)

Mikrobiologie der Lebensmittelkette - Horizontales
Verfahren zur Zählung von Mikroorganismen - Teil 1:
Koloniezählung bei 30 °C mittels Gussplattenverfahren
(ISO 4833-1:2013 + ISO 4833-1:2013/Amd 1:2022)

This European Standard was approved by CEN on 26 July 2013. Amendment A1 was approved by CEN on 1 January 2022.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Foreword

This document (EN ISO 4833-1:2013) has been prepared by Technical Committee ISO/TC 34 "Food products" in collaboration with Technical Committee CEN/TC 275 "Food analysis - Horizontal methods" 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 March 2014, and conflicting national standards shall be withdrawn at the latest by March 2014.

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Endorsement notice

The text of ISO 4833-1:2013 has been approved by CEN as EN ISO 4833-1:2013 without any modification.

A1 Amendment A1 European foreword

This document (EN ISO 4833-1:2013/A1:2022) has been prepared by Technical Committee ISO/TC 34 "Food products" in collaboration with Technical Committee CEN/TC 463 "Microbiology of the food chain" the secretariat of which is held by AFNOR.

This Amendment to the European Standard EN ISO 4833-1:2013 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2022, and conflicting national standards shall be withdrawn at the latest by July 2022.

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Endorsement notice

The text of ISO 4833-1:2013/Amd 1:2022 has been approved by CEN as EN ISO 4833-1:2013/A1:2022 without any modification. **A1**

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2, www.iso.org/directives.

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The committee responsible for this document is ISO/TC 34, *Food products*, Subcommittee SC 9, *Microbiology*.

This first edition, together with ISO 4833-2, cancels and replaces ISO 4833:2003.

ISO 4833 consists of the following parts, under the general title *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms*:

- *Part 1: Colony count at 30 °C by the pour plate technique*
- *Part 2: Colony count at 30 °C by the surface plating technique*

A1 Amendment A1 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.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee TC 34, *Food products*, Subcommittee SC 9, *Microbiology*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 463, *Microbiology of the food chain*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 4833 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html. **A1**

Microbiology of the food chain — Horizontal method for the enumeration of microorganisms —

Part 1: Colony count at 30 °C by the pour plate technique

1 Scope

[A1] This document specifies a horizontal method for enumeration of microorganisms that are able to grow and form colonies in a solid medium after aerobic incubation at 30 °C.

The method described in this document is applicable to:

- products intended for human consumption;
- products intended for feeding animals (including pets);
- environmental samples in the area of food and feed production and handling;
- all samples from the primary production stage.

This technique is suitable for, but not limited to, the enumeration of microorganisms in test samples with a minimum of 10 colonies counted on a plate. This corresponds to a level of contamination that is expected to be higher than 10 cfu/ml for liquid samples or higher than 100 cfu/g for solid samples.

This technique is especially suitable for:

- products that require a reliable count when a low limit of quantification is specified,
- products expected to contain spreading colonies that can obscure colonies of other organisms, e.g. milk and milk products likely to contain spreading *Bacillus* species;
- products expected to contain bacteria that are sensitive to oxygen, e.g. some lactic acid bacteria that develop during shelf life or modified atmosphere storage.

This horizontal method was originally developed for the examination of samples belonging to the food chain. Because of the large variety of products in the food chain, it is possible that this horizontal method is not appropriate in every detail for all products. Nevertheless, it is expected that the required modifications are minimized so that they do not result in a significant deviation from this horizontal method.

Based on the information available at the time of publication of this document, the suitability of this method for the examination of certain fermented food and animal feeds is considered to be limited and other media or incubation conditions can be more appropriate. However, this method can still be applied to such products even though it is possible that the predominant microorganisms in those products are not detected effectively. **[A1]**

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 7218, *Microbiology of food and animal feeding stuffs — General requirements and guidance for microbiological examinations*

ISO 11133, *Microbiology of food, animal feed and water — Preparation, production, storage and performance testing of culture media*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

microorganism

entity of microscopic size, encompassing bacteria, fungi, protozoa and viruses

[SOURCE: ISO/TS 11139:2006,³ 2.26]

Note 1 to entry: For the purposes of this part of ISO 4833, microorganisms are bacteria, yeasts and moulds that are able to produce colonies under the conditions specified in this part of ISO 4833.

4 Principle

A specified quantity of the liquid test sample, or a specified quantity of an initial suspension in the case of other products, is dispensed into an empty Petri dish and mixed with a specified molten agar culture medium to form a poured plate.

Other plates are prepared under the same conditions using decimal dilutions of the test sample or of the initial suspension.

The plates are incubated under aerobic conditions at 30 °C for 72 h.

The number of microorganisms per gram or per millilitre of the test sample is calculated from the number of colonies obtained in the plates containing fewer than 300 colonies.

5 Culture media and diluents

5.1 General

Follow ISO 11133 for preparation, production and performance testing of culture media.

5.2 Diluents

Use the diluent(s) specified in ISO 6887 for the product concerned or the specific International Standard dealing with the product under examination.