

TOIDUAHELA MIKROBIOLOOGIA.  
HORISONTAALMEETOD ENTEROBACTERIACEAE  
TUVASTAMISEKS JA ARVULISEKS MÄÄRAMISEKS. OSA 1:  
ENTEROBACTERIACEAE TUVASTAMINE

Microbiology of the food chain - Horizontal method for  
the detection and enumeration of Enterobacteriaceae -  
Part 1: Detection of Enterobacteriaceae (ISO  
21528-1:2017)

## EESTI STANDARDI EESSÕNA

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See Eesti standard EVS-EN ISO 21528-1:2017 sisaldab Euroopa standardi EN ISO 21528-1:2017 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 21528-1:2017 consists of the English text of the European standard EN ISO 21528-1:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 05.07.2017.	Date of Availability of the European standard is 05.07.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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English Version

**Microbiology of the food chain - Horizontal method for the  
detection and enumeration of Enterobacteriaceae - Part 1:  
Detection of Enterobacteriaceae (ISO 21528-1:2017)**

Microbiologie de la chaîne alimentaire - Méthode  
horizontale par la recherche et le dénombrement des  
Enterobacteriaceae - Partie 1: Recherche des  
Enterobacteriaceae (ISO 21528-1:2017)

Mikrobiologie der Lebensmittelkette - Horizontales  
Verfahren für den Nachweis und die Zählung von  
Enterobacteriaceae Teil 1: Nachweis von  
Enterobacteriaceae (ISO 21528-1:2017)

This European Standard was approved by CEN on 27 April 2017.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN ISO 21528-1:2017) 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of an identical text or by endorsement, at the latest by January 2018, and conflicting national standards shall be withdrawn at the latest by January 2018.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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### Endorsement notice

The text of ISO 21528-1:2017 has been approved by CEN as EN ISO 21528-1:2017 without any modification.

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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.

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 (see [www.iso.org/directives](http://www.iso.org/directives)).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html)

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 275, *Food analysis — Horizontal methods*, in collaboration with ISO Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 9, *Microbiology*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 21528-1:2004), which has been technically revised with the following main changes:

- the MPN method has become an informative [Annex A](#);
- the pre-enrichment step in BPW followed by enrichment in EE broth has been changed to enrichment in BPW[2] and confirmation now takes place in Glucose OF medium instead of using glucose agar;
- performance testing for the quality assurance of the culture media has been added;
- performance characteristics for this method have been added to [Annex C](#).

A list of all the parts in the ISO 21528 series can be found on the ISO website.

## Introduction

This document is intended to provide general guidance for the examination of products not dealt with by existing International Standards and to be taken into account by organizations preparing microbiological test methods for application to foods or animal feeding stuffs. Because of the large variety of products within this field of application, these guidelines may not be appropriate in every detail for certain products, 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.

The main changes, listed in the foreword, introduced in this document compared to ISO 21528-1:2004 are considered as major (see ISO 17468).

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 this horizontal method. It is hoped that when such standards are reviewed, they will be changed to comply with this document so that eventually the only remaining departures from this horizontal method will be those necessary for well-established technical reasons.

# Microbiology of the food chain — Horizontal method for the detection and enumeration of *Enterobacteriaceae* —

## Part 1:

## Detection of *Enterobacteriaceae*

**WARNING** — In order to safeguard the health of laboratory personnel, it is essential that tests for detecting *Enterobacteriaceae* are only undertaken in properly equipped laboratories under the control of a skilled microbiologist, and that great care is taken in the disposal of all incubated materials. Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety aspects, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices.

### 1 Scope

This document specifies a method, with enrichment, for the detection of *Enterobacteriaceae*. It is applicable to

- products intended for human consumption and the feeding of animals, and
- environmental samples in the area of primary production, food production and food handling.

This method is applicable

- when the microorganisms sought are expected to need resuscitation by enrichment, and
- when the number sought is expected to be below 100 per millilitre or per gram of test sample.

A limitation on the applicability of this document is imposed by the susceptibility of the method to a large degree of variability (see [Clause 11](#)).

**NOTE** Enumeration can be carried out by calculation of the most probable number (MPN) after incubation in liquid medium. See [Annex A](#).

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 6887 (all parts), *Microbiology of the food chain — 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.