

**Vee kvaliteet. Coli-laadsete,  
termotolerantsete coli-laadete  
mikroorganismide ja eeldatavalt  
Escherichia coli avastamine ja  
loendamine. Osa 1:  
Membraanfiltratsiooni meetod**

Water quality - Detection and enumeration of  
Escherichia coli and coliform bacteria - Part 1:  
Membrane filtration method

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 9308-1:2002 sisaldab Euroopa standardi EN ISO 9308-1:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 16.01.2002 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 9308-1:2002 consists of the English text of the European standard EN ISO 9308-1:2000.</p> <p>This document is endorsed on 16.01.2002 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>
--	---

<p><b>Käsitlusala:</b></p> <p>This International Standard describes a reference method (Standard Test) for the detection and enumeration of E. coli and coliform bacteria in water for human consumption. The Standard Test is based on membrane filtration, subsequent culture on a different agar medium and calculation of the number of target organisms in the sample. The Standard Test has a low selectivity, allowing detection of injured bacteria. Due to the low selectivity, background growth can interfere with the reliable enumeration of coliform bacteria and E.coli, for example in some drinking waters, like shallow well waters, that have not been disinfected and yield a high background growth. It is therefore especially suitable for disinfected water and other drinking waters of low bacterial numbers. The standard includes a rapid method (Rapid Test) for the detection of E.coli only within 24 h, which can be useful in special cases, when quick information is needed. The Rapid Test is based on membrane filtration, subsequent culture under selective conditions and calculation of the number of E.coli in the sample.</p>	<p><b>Scope:</b></p> <p>This International Standard describes a reference method (Standard Test) for the detection and enumeration of E. coli and coliform bacteria in water for human consumption. The Standard Test is based on membrane filtration, subsequent culture on a different agar medium and calculation of the number of target organisms in the sample. The Standard Test has a low selectivity, allowing detection of injured bacteria. Due to the low selectivity, background growth can interfere with the reliable enumeration of coliform bacteria and E.coli, for example in some drinking waters, like shallow well waters, that have not been disinfected and yield a high background growth. It is therefore especially suitable for disinfected water and other drinking waters of low bacterial numbers. The standard includes a rapid method (Rapid Test) for the detection of E.coli only within 24 h, which can be useful in special cases, when quick information is needed. The Rapid Test is based on membrane filtration, subsequent culture under selective conditions and calculation of the number of E.coli in the sample.</p>
--	--

ICS 07.100.20

**Võtmesõnad:** analysis micro-organisms, determ, escherichia coli, filtration, filtration

Eesti Standardikeskusele kuulub standardite reprodutseerimis- ja levitamisoigus

English version

Water quality – Detection and enumeration of  
*Escherichia coli* and coliform bacteria

Part 1: Membrane filtration method  
(ISO 9308-1 : 2000)

Qualité de l'eau – Recherche et  
dénombrement des *Escherichia coli*  
et des bactéries coliformes – Partie 1:  
Méthode par filtration sur membrane  
(ISO 9308-1 : 2000)

Wasserbeschaffenheit – Nachweis  
und Zählung von *Escherichia coli* und  
coliformen Bakterien – Teil 1:  
Membranfiltrationsverfahren  
(ISO 9308-1 : 2000)

This European Standard was approved by CEN on 2000-09-15.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Management Centre: rue de Stassart 36, B-1050 Brussels

## Foreword

International Standard

ISO 9308-1 : 2000 Water quality – Detection and enumeration of *Escherichia coli* and coliform bacteria – Part 1: Membrane filtration method,

which was prepared by ISO/TC 147 'Water quality' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 230 'Water analysis', the Secretariat of which is held by DIN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by March 2001 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 9308-1 : 2000 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in Annex ZA (normative).

## Contents

Page

<b>Foreword</b>	2
<b>Introduction</b>	3
<b>1 Scope</b>	3
<b>2 Normative references</b>	3
<b>3 Terms and definitions</b>	4
<b>4 Principle</b>	4
<b>5 Apparatus and glassware</b>	5
<b>6 Culture media and reagents</b>	5
<b>7 Sampling</b>	6
<b>8 Procedure</b>	6
<b>9 Expression of results</b>	7
<b>10 Test report</b>	7
<b>11 Quality assurance</b>	7
<b>Annex A (informative) Further microbiological information on coliform bacteria</b>	8
<b>Annex B (normative) Culture media and reagents</b>	9
<b>Bibliography</b>	12

## Introduction

The presence and extent of faecal pollution is an important factor in assessing the quality of a body of water and the risk to human health from infection. Examination of water samples for the presence of *Escherichia coli*, which normally inhabits the bowel of man and other warm-blooded animals, provides an indication of such pollution. Examination for coliform bacteria can be more difficult to interpret because some coliform bacteria live in soil and surface fresh water, and are not always intestinal. Therefore, the presence of coliform bacteria, although not a proof of faecal contamination, may indicate failure in treatment or distribution. The identification of the strains isolated can sometimes provide an indication of their origin.

## 1 Scope

This part of ISO 9308 describes a reference method (Standard Test) for the detection and enumeration of *Escherichia coli* and coliform bacteria in water for human consumption. The Standard Test is based on membrane filtration, subsequent culture on a differential agar medium and calculation of the number of target organisms in the sample.

The Standard Test has a low selectivity, allowing the detection of injured bacteria. Due to the low selectivity, background growth can interfere with the reliable enumeration of coliform bacteria and *E. coli*, for example in some drinking waters, like shallow well waters, that have not been disinfected and yield a high background growth. This part of ISO 9308 is therefore especially suitable for disinfected water and other drinking waters of low bacterial numbers.

This part of ISO 9308 includes a rapid method (Rapid Test) for the detection of *E. coli* only within 24 h in water for human consumption, which can be useful in special cases when information is needed quickly. The Rapid Test is based on membrane filtration, subsequent culture under selective conditions and calculation of the number of *E. coli* in the sample.

Standard and Rapid Tests described in this part of ISO 9308 are applicable to other kinds of water provided that suspended matter or background flora does not interfere with filtration, culture and counting.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 9308. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 9308 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC Guide 2, *Standardization and related activities — General vocabulary*.

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

ISO 5667-1:1980, *Water quality — Sampling — Part 1: Guidance on the design of sampling programmes*.

ISO 5667-2:1991, *Water quality — Sampling — Part 2: Guidance on sampling techniques*.

ISO 5667-3:1994, *Water quality — Sampling — Part 3: Guidance on the preservation and handling of samples*.