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**Water quality — Enumeration of culturable  
micro-organisms — Colony count by  
inoculation in a nutrient agar culture  
medium**

*Qualité de l'eau — Dénombrement des micro-organismes revivifiables —  
Comptage des colonies par ensemencement dans un milieu de culture nutritif  
gélifié*

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## Foreword

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International Standard ISO 6222 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 147, *Water quality*, Subcommittee SC 4, *Microbiological methods*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

This second edition cancels and replaces the first edition (ISO 6222:1988), which has been technically revised.

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## Foreword

The text of EN ISO 6222:1999 has been prepared by Technical Committee CEN/TC 230 "Water analysis", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 147 "Water quality".

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of an identical text or by endorsement, at the latest by November 1999, and conflicting national standards shall be withdrawn at the latest by November 1999.

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

## Introduction

Waters of all kinds invariably contain a variety of micro-organisms derived from various sources, such as soil and vegetation, and estimation of the overall numbers provide useful information for the assessment and surveillance of water quality. Separate counts are usually made of the micro-organisms which are able to grow and form colonies on nutrient agar media at 36 °C and 22 °C.

Colony counts are useful for assessing the integrity of ground water sources and the efficiency of water treatment processes such as coagulation, filtration and disinfection and provide an indication of the cleanliness and integrity of the distribution system. They can also be used to assess the suitability of a supply for the preparation of food and drink, where the water supply should contain few micro-organisms to avoid contaminating the product with spoilage organisms.

The main value of colony counts lies in the detection of changes from those expected, based on frequent, long term monitoring. Any sudden increase in the count can be an early warning of serious pollution and calls for immediate investigation.

## 1 Scope

This European Standard specifies a method for the enumeration of culturable micro-organisms in water by counting the colonies formed in a nutrient agar culture medium after aerobic incubation at 36 °C and 22 °C.

The method is intended to measure the operational efficiency of the treatment process of public drinking water supplies and for general application to all types of water. It is particularly applicable to the examination of water intended for human consumption, including water in closed containers and to natural mineral waters.

## 2 Normative references

This European Standard incorporates provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed thereafter. For dated references, subsequent amendment to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the most recent edition of the publication referred to applies.

EN ISO 3696

Water for analytical laboratory use – Specification and test methods (ISO 3696:1987)

EN ISO 5667-3

Water quality – Sampling – Part 3: Guidance on the preservation and handling of samples (ISO 5667-3:1994)

EN 25667-2

Water quality – Sampling – Part 2: Guidance on sampling techniques (ISO 5667-2:1991)

ISO 6887

Microbiology – General guidance for the preparation of dilutions for microbiological examinations

ISO 8199

Water quality – General guide to the enumeration of micro-organisms by culture