

INTERNATIONAL
STANDARD

ISO
10712

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**Water quality — *Pseudomonas putida*
growth inhibition test (*Pseudomonas* cell
multiplication inhibition test)**

Qualité de l'eau — Essai d'inhibition de la croissance de Pseudomonas putida (essai d'inhibition de la multiplication des cellules de Pseudomonas)



Reference number
ISO 10712:1995(E)

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.

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.

International Standard ISO 10712 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 5, *Biological methods*.

Annexes A and B of this International Standard are for information only.

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Introduction

The bacterium *Pseudomonas putida* is used as an organism representative of heterotrophic microorganisms in fresh water.

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Water quality — *Pseudomonas putida* growth inhibition test (*Pseudomonas* cell multiplication inhibition test)

1 Scope

This International Standard specifies a test method for determining the inhibitory effect of surface, ground and waste water on *Pseudomonas putida*.

This method is not suitable for highly coloured test samples, or samples containing undissolved or volatile materials or substances which react with the nutrient solution, or which undergo changes during the test (for example by precipitation, or biochemical or photochemical degradation) and may give false results and/or impair the reproducibility.

The method is also suitable for testing substances soluble in water (see annex A).

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7027:1990, *Water quality — Determination of turbidity*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 multiplication; growth: Increase in the number of cells during the test period.

3.2 concentration-effect relationship: Dependence of cell multiplication inhibition on the concentration of the test sample.

NOTE 1 The relationship is graphically represented by plotting the inhibition values along the ordinate against the sample concentrations along the abscissa.

3.3 effective concentration (EC): Concentration of the test sample giving a calculated or interpolated inhibition of cell multiplication of *Pseudomonas putida* within $16 \text{ h} \pm 1 \text{ h}$, compared to that of the control batch.

The concentrations of test samples (EC10 and EC50) are determined from the concentration-effect relationship (3.2) at which cell multiplication is inhibited by 10 % or 50 % respectively, compared to that of the control batch.

3.4 stock culture: Bacterial culture obtained from the collection strain of the laboratory and intended to provide an inoculum for the preculture in the test procedure.

3.5 preculture: Bacterial culture separately used to adapt the test bacteria to the test conditions and to produce an adequate number of exponentially multiplying bacteria as an inoculum for the test culture.

3.6 test culture: Inoculated test medium (3.9).

3.7 inoculum: Suspension of bacteria used to inoculate a nutrient solution.