

INTERNATIONAL
STANDARD

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9439

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**Water quality — Evaluation in an aqueous
medium of the “ultimate” aerobic
biodegradability of organic compounds —
Method by analysis of released carbon dioxide**

*Qualité de l'eau — Évaluation, en milieu aqueux, de la biodégradabilité
aérobie “ultime” des composés organiques — Méthode par dosage du
dioxyde de carbone dégagé*



Reference number
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Foreword

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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 9439 was prepared by Technical Committee ISO/TC 147, *Water quality*.

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

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Water quality — Evaluation in an aqueous medium of the “ultimate” aerobic biodegradability of organic compounds — Method by analysis of released carbon dioxide

1 Scope

This International Standard specifies a method, by analysis of released carbon dioxide, for the evaluation in an aqueous medium of the “ultimate” biodegradability of organic compounds at a given concentration by aerobic micro-organisms.

The method applies to organic compounds which are

- a) soluble in the test conditions;
- b) insoluble in the test conditions, in which case special measures may be necessary to achieve good dispersion of the compound;
- c) non-volatile or which have a negligible vapour pressure under the conditions of the test;
- d) not inhibitory to the test micro-organisms at the concentration chosen for the test. The presence of an inhibitory effect can be determined as specified in 8.3, or by using any other method for determining the inhibitory effect of a compound on bacteria (see, for example, ISO 8192).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7827:1984, *Water quality — Evaluation in an aqueous medium of the “ultimate” aerobic biodegradability of organic compounds — Method by analysis of dissolved organic carbon (DOC)*.

ISO 8192:1986, *Water quality — Test for inhibition of oxygen consumption by activated sludge*.

3 Definitions

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

3.1 ultimate biodegradation: The level of degradation achieved when the test compound is totally utilized by micro-organisms resulting in the production of carbon dioxide, water, mineral salts and new microbial cellular constituents (biomass).

3.2 suspended solids (of an activated sludge): Solids removed by filtration or centrifuging of a known volume of sludge under specified conditions, and, for the purpose of this International Standard, drying at about 100 °C.

3.3 pre-exposure (or pre-adaptation): The pre-incubation of an inoculum in the presence of the test compound, with the aim of enhancing the ability of the inoculum to degrade the test compound.

3.4 pre-conditioning (or pre-acclimatization): The pre-incubation of an inoculum under the conditions of the test in the absence of the test compound, to improve the performance of the test.

4 Principle

Determination of the biodegradation of organic compounds by aerobic micro-organisms, using a test medium.