

**Vee kvaliteet. Orgaaniliste ühendite
aeroobse biolagundatavuse hindamine
veekeskkonnas. Staatiline katse. (Zahn-
Wellensi meetod)**

Water quality - Evaluation of the aerobic
biodegradability of organic compounds in an
aqueous medium - Static test - (Zahn-Wellens
method)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 9888:1999 sisaldab Euroopa standardi EN ISO 9888:1999 ingliskeelset teksti. Käesolev dokument on jõustatud 12.12.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN ISO 9888:1999 consists of the English text of the European standard EN ISO 9888:1999. This document is endorsed on 12.12.1999 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: Standard esitab meetodi etteantud kontsentratsiooniga orgaaniliste ühendite eemaldamise ja "täieliku" biolagundatavuse hindamiseks aeroobsete mikroorganismide toimet. Käesolevas standardis kirjeldatud tingimused vastavad tavaliselt optimaalsetele tingimustele, mis võimaldavad valitud külviga saavutada biolagundatavuse maksimaalväärtust testimisaja jooksul.	Scope:
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ICS 13.060.70

Võtmesõnad: aeroobne bakter, biolagundatavus, kvaliteet, määramine, orgaanilised ühendid, staatilised testid, testid, vesi

English version

Water quality

**Evaluation of ultimate aerobic biodegradability
of organic compounds in aqueous medium**

Static test (Zahn-Wellens method)
(ISO 9888 : 1999)

Qualité de l'eau – Évaluation, en milieu aqueux, de la biodégradabilité aérobie ultime des composés organiques – Essai statique (méthode Zahn-Wellens) (ISO 9888 : 1999)

Wasserbeschaffenheit – Bestimmung der aeroben biologischen Abbaubarkeit organischer Stoffe im wässrigen Medium – Statischer Test (Zahn-Wellens-Test) (ISO 9888 : 1999)

This European Standard was approved by CEN on 1999-05-20.

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 Central Secretariat 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 Central Secretariat 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

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 9888 : 1999 Water quality – Evaluation of ultimate aerobic biodegradability of organic compounds in aqueous medium – Static test (Zahn-Wellens 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 December 1999 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 9888 : 1999 was approved by CEN as a European Standard without any modification.

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

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WARNING — Activated sludge and sewage may contain potentially pathogenic organisms. Take appropriate precautions when handling them. Handle with care toxic test compounds and those with unknown properties.

1 Scope

This International Standard specifies a method for the evaluation in aqueous medium of the ultimate biodegradability and, as additional information, the primary biodegradability and the total elimination from water, of organic compounds at a given concentration by aerobic microorganisms.

The conditions described in this International Standard normally correspond to optimal conditions for allowing the maximum value of biodegradation to occur with the chosen inoculum in the test time. These conditions may even be more favourable than in full-scale wastewater treatment plants, especially if their hydraulic retention time, sludge age or the adaptation of the activated sludge is not optimal.

The method applies to organic compounds which are

- a) water-soluble at the concentration used under the test conditions and not expected to be transformed to insoluble metabolites if biodegradation and not elimination only shall be determined;
- b) nonvolatile, or which have a negligible vapour pressure under the test conditions;
- c) not lost by foaming from the test solution;
- d) not inhibitory to the test microorganisms at the concentration chosen for the test. Inhibitory effects can be determined using a suitable test method (e.g. see ISO 8192). If the test compound is toxic, the test concentration must be lowered, or a pre-exposed inoculum can be used.

This International Standard is also applicable to the measurement of biodegradation and elimination of dissolved organic compounds in wastewater (also called "test compound" in the method).

NOTE If more information is required to predict the behaviour of test compounds or wastewater in a treatment plant, a simulation test (e.g. the activated sludge simulation test ISO 11733) should be performed. For appropriate use of this method and for alternative biodegradation methods, see ISO 15462.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard 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 6060:1989, *Water quality — Determination of the chemical oxygen demand*.

ISO 8245, *Water quality — Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)*.