

Soil quality - Guidance on laboratory testing for biodegradation of organic chemicals in soil under aerobic conditions (ISO 11266:1994)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 11266:2020 sisaldab Euroopa standardi EN ISO 11266:2020 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 11266:2020 consists of the English text of the European standard EN ISO 11266:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

Soil quality - Guidance on laboratory testing for  
biodegradation of organic chemicals in soil under aerobic  
conditions (ISO 11266:1994)

Qualité du sol - Lignes directrices relatives aux essais  
en laboratoire pour la biodégradation de produits  
chimiques organiques dans le sol sous conditions  
aérobies (ISO 11266:1994)

Bodenbeschaffenheit - Anleitung für  
Laboratoriumsuntersuchungen zur biologischen  
Abbaubarkeit von organischen Chemikalien im Boden  
unter aeroben Bedingungen (ISO 11266:1994)

This European Standard was approved by CEN on 13 April 2020.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

## European foreword

The text of ISO 11266:1994 has been prepared by Technical Committee ISO/TC 190 "Soil quality" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 11266:2020 by Technical Committee CEN/TC 444 "Environmental characterization of solid matrices" the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by November 2020, and conflicting national standards shall be withdrawn at the latest by November 2020.

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## Endorsement notice

The text of ISO 11266:1994 has been approved by CEN as EN ISO 11266:2020 without any modification.

## 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 11266 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 4, *Biological methods*.

Annexe A of this International Standard is for information only.

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## Introduction

Organic chemicals may be introduced into the soil both intentionally and accidentally, after which they may, or may not, degrade biologically. For chemicals which do degrade, the rate of degradation can vary considerably, depending not only on the molecular structure of the chemical, but also on soil conditions such as temperature, water and oxygen availability which influence microbial activity. The activity of micro-organisms often plays a major role in degradative processes.

It is necessary to have laboratory tests available to estimate the rate and extent of biodegradation and thereby the persistence of organic chemicals in soil. Numerous laboratory methods are available for the estimation of aerobic biodegradation, but these differ considerably according to the specific circumstances, for example, soil type, temperature and incubation times.

This International Standard provides general guidelines for the selection and conduct of tests for determining the biodegradation of organic chemicals in aerobic soils.

At the time of writing, there is insufficient agreement on methodology for testing biodegradability in anaerobic soils for guidelines to be prepared.

# Soil quality — Guidance on laboratory testing for biodegradation of organic chemicals in soil under aerobic conditions

## 1 Scope

This International Standard provides guidance on the selection and conduct of appropriate test methods for the determination of biodegradation of organic chemicals in aerobic soils. It does not describe any specific test method.

## 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 9408:1991, *Water quality — Evaluation in an aqueous medium of the "ultimate" aerobic biodegradability of organic compounds — Method by determining the oxygen demand in a closed respirometer*.

ISO 10381-6:1993, *Soil quality — Sampling — Guidance on the collection, handling and storage of soil for the assessment of aerobic microbial processes in the laboratory*.

ISO 10390:1994, *Soil quality — Determination of pH*.

ISO 10694:—<sup>1)</sup>, *Soil quality — Determination of organic and total carbon after dry combustion ("Element analysis")*.

ISO 11260:1994, *Soil quality — Determination of cation exchange capacity and base saturation — Method using barium chloride solution*.

ISO 11261:—<sup>1)</sup>, *Soil quality — Determination of total nitrogen — Kjeldahl method using titanium dioxide as catalyst*.

ISO 11274:—<sup>1)</sup>, *Soil quality — Determination of the water retention characteristic — Laboratory methods*.

ISO 11277:—<sup>1)</sup>, *Soil quality — Determination of particle size distribution*.

ISO 11461:—<sup>1)</sup>, *Soil quality — Determination of soil water content calculated on a volume basis — Gravimetric method*.

## 3 Definitions

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

**3.1 biodegradation:** The molecular degradation of an organic substance resulting from the complex actions of living organisms.

**3.2 primary biodegradation:** The degradation of a substance to an extent sufficient to remove some characteristic property of the parent molecule. In practice, this will be determined by analysis as a loss of parent compound or some specific function of the parent compound.

**3.3. ultimate biodegradation:** The breakdown of an organic compound to carbon dioxide, water, the oxides or mineral salts of any other elements present, and products associated with the normal metabolic processes of microorganisms.

**3.4 persistence:** The residence time of a chemical species in a specifically defined compartment of the environment.

**3.5 the disappearance time DT-50:** The time taken for the concentration of a given compound to decrease by 50 % of its original value.

1) To be published.