

Soil quality - Laboratory incubation systems for measuring the mineralization of organic chemicals in soil under aerobic conditions (ISO 14239:2017)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|   |  |
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| See Eesti standard EVS-EN ISO 14239:2020 sisaldab Euroopa standardi EN ISO 14239:2020 ingliskeelset teksti.         | This Estonian standard EVS-EN ISO 14239:2020 consists of the English text of the European standard EN ISO 14239:2020.              |
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| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 29.04.2020. | Date of Availability of the European standard is 29.04.2020.   |
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ICS 13.080.30

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English Version

Soil quality - Laboratory incubation systems for measuring  
the mineralization of organic chemicals in soil under  
aerobic conditions (ISO 14239:2017)

Qualité du sol - Systèmes d'incubation de laboratoire  
destinés à la mesure de la minéralisation de produits  
chimiques organiques dans le sol en conditions  
aérobies (ISO 14239:2017)

Bodenbeschaffenheit -  
Laboratoriumsinkubationssysteme zur Bestimmung  
der Mineralisierung von organischen Chemikalien im  
Boden unter aeroben Bedingungen (ISO 14239:2017)

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

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This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

## European foreword

The text of ISO 14239:2017 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 14239:2020 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 October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 14239:2017 has been approved by CEN as EN ISO 14239:2020 without any modification.

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## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation on the voluntary nature of standards, on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

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

This second edition cancels and replaces the first edition (ISO 14239:1997), which has been technically revised. The main changes are the inclusion of two additional incubation systems.

## Introduction

This document describes incubation systems for determining the mineralization of organic compounds in soil under aerobic conditions.

Mineralization is only one of the parameters which can be used to assess the biodegradation of organic compounds in soil. If mineralization is not extensive, this does not necessarily mean that the test material is not biodegradable. Material balance studies to assess the production of metabolites, in addition to mineralization studies, provide a comprehensive assessment of biodegradation.

It is essential that this document be used in conjunction with ISO 11266, which gives general guidance on the information needed to assess the potential of an organic compound to be degraded in soil.

Depending on the aim of the study, it is feasible to use a range of incubation conditions, described below, and different methods of analysis.

# Soil quality — Laboratory incubation systems for measuring the mineralization of organic chemicals in soil under aerobic conditions

**WARNING** — The methods in this document use several materials of a hazardous nature. Due care is necessary in their handling and disposal. In particular, all pertinent national regulations should be complied with.

## 1 Scope

This document specifies six suitable incubation systems for measuring the rates and extent of mineralization of organic compounds in soil by measurement of carbon dioxide (CO<sub>2</sub>) evolution. All incubation systems are applicable to soluble or insoluble compounds but choice of system depends on the overall purposes of the study.

This document does not apply to the use of such systems for material balance studies, which are often test-substance specific.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11266, *Soil quality — Guidance on laboratory testing for biodegradation of organic chemicals in soil under aerobic conditions*

ISO 11269-2:2012, *Soil quality — Determination of the effects of pollutants on soil flora — Part 2: Effects of contaminated soil on the emergence and early growth of higher plants*

ISO 11274, *Soil quality — Determination of the water-retention characteristic — Laboratory methods*

ISO 18400-206,<sup>1)</sup> *Soil quality — Sampling — Part 206: Guidance on the collection, handling and storage of soil for the assessment of biological functional and structural endpoints in the laboratory*

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

## 4 Methods

### 4.1 General requirements

The following procedures shall be followed, whichever incubation system is selected.

1) Under preparation. Stage at the time of publication: ISO/DIS 18400-206:2017.