

**ISO 17155**



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**Soil quality - Determination of abundance and activity of soil microflora using respiration curves (ISO 17155:2012)**

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English Version

**Soil quality - Determination of abundance and activity of  
soil microflora using respiration curves (ISO 17155:2012)**

Qualité du sol - Détermination de l'abondance et de  
l'activité de la microflore du sol à l'aide de courbes de  
respiration (ISO 17155:2012)

Bodenbeschaffenheit - Bestimmung der Abundanz und  
Aktivität der Bodenmikroflora mit Hilfe von  
Atmungskurven (ISO 17155:2012)

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**EN ISO 17155:2020 (E)**

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## European foreword

The text of ISO 17155:2012 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 17155:2020 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of an identical text or by endorsement, at the latest by November 2020, and conflicting national standards shall be withdrawn at the latest by November 2020.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 17155:2012 has been approved by CEN as EN ISO 17155:2020 without any modification.

# INTERNATIONAL STANDARD

**ISO**  
**17155**

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2012-10-01

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## **Soil quality — Determination of abundance and activity of soil microflora using respiration curves**

*Qualité du sol — Détermination de l'abondance et de l'activité de la  
microflore du sol à l'aide de courbes de respiration*



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**ISO 17155:2012(E)**



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**ISO 17155:2012(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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

ISO 17155 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 17155:2002), which has been technically revised.

# Soil quality — Determination of abundance and activity of soil microflora using respiration curves

## 1 Scope

This International Standard specifies a test method for determining the activity of active aerobic, heterotrophic microbial biomass in soils. This method is applicable to the monitoring of soil quality and to the evaluation of the ecotoxic potential of soils and soil materials. It is also applicable for soils sampled along contamination gradients in the field and to soils that are contaminated experimentally in the field or in the laboratory.

## 2 Normative references

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

ISO 10381-6, *Soil quality — Sampling — Part 6: Guidance on the collection, handling and storage of soil under aerobic conditions for the assessment of microbiological processes, biomass and diversity in the laboratory*

ISO 10390, *Soil quality — Determination of pH*

ISO 10694, *Soil quality — Determination of organic and total carbon after dry combustion (elementary analysis)*

ISO 11277, *Soil quality — Determination of particle size distribution in mineral soil material — Method by sieving and sedimentation*

ISO 11465, *Soil quality — Determination of dry matter and water content on a mass basis — Gravimetric method*

ISO 14238, *Soil quality — Biological methods — Determination of nitrogen mineralization and nitrification in soils and the influence of chemicals on these processes*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### basal respiration rate

$R_B$

constant mass of CO<sub>2</sub> released or mass of O<sub>2</sub> consumed per unit mass of soil per unit time without substrate addition

NOTE See Figure 1 for a typical basal respiration curve.

### 3.2

#### substrate-induced respiration rate

$R_S$

constant mass of CO<sub>2</sub> released or mass of O<sub>2</sub> consumed per unit mass of soil per unit time shortly after addition of a carbon substrate

NOTE 1 See Figure 1 for a typical substrate-induced respiration curve.

NOTE 2 If glucose is used as a carbon substrate, microbial biomass can be determined from the substrate-induced respiration rate (see ISO 14240-1<sup>[1]</sup>).