

**Soil quality - Determination of soil microbial biomass -  
Part 1: Substrate-induced respiration method (ISO  
14240-1:1997)**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<div>E 1:2011 14240-1:2011</div> <div>S 29 07 2011</div> <div>E 22 0 2011</div> <div>S</div>	<div>EVS-E ISO 14240- E ISO</div> <div>E S</div> <div>EVS</div> <div>E</div> <div>E</div> <div>E</div>	<div>E 1:2011 E</div> <div>E 29 07 2011</div> <div>22 0 2011</div>	<div>EVS-E ISO 14240- E ISO 14240-1:2011</div> <div>S</div> <div>E</div> <div>E</div>
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English Version

Soil quality - Determination of soil microbial biomass - Part 1:  
Substrate-induced respiration method (ISO 14240-1:1997)

Qualité du sol - Détermination de la biomasse microbienne  
du sol - Partie 1 : Méthode par respiration induite par le  
substrat (ISO 14240-1:1997)

Bodenbeschaffenheit - Bestimmung der mikrobiellen  
Biomasse von Böden - Teil 1: Substrat-induziertes  
Respirationsverfahren (ISO 14240-1:1997)

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## Foreword

The text of ISO 14240-1:1997 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 14240-1:2011 by Technical Committee CEN/TC 345 “Characterization of soils” 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of an identical text or by endorsement, at the latest by December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

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### Endorsement notice

The text of ISO 14240-1:1997 has been approved by CEN as a EN ISO 14240-1:2011 without any modification.

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## Introduction

Soil consists of both living and nonliving components which exist in a complex and heterogeneous environment. Soil microflora is responsible for the degradation of organic matter, stability of aggregates and most nutrient cycling which occurs in soils. The purpose of determining the microbial biomass of soils is to allow assessment of the continued maintenance of soil fertility, the potential ability to degrade organic materials, and the effects of added materials on the natural microbial population.

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# Soil quality — Determination of soil microbial biomass —

## Part 1:

## Substrate-induced respiration method

### 1 Scope

This part of ISO 14240 specifies a method for estimating the active aerobic, heterotrophic microbial biomass in aerated agricultural and mineral soils.

Determination of the effects of chemicals on biomass is outside the scope of this part of ISO 14240.

### 2 Normative references

The following standards contain provisions which, through reference in this text constitute provisions of this part of ISO 14240. At the time of publication the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 14240 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 10381-6:1993, *Soil quality — Sampling — Part 6: 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 11277:—<sup>1)</sup>, *Soil quality — Determination of particle size distribution in mineral soil material — Method by sieving and sedimentation following removal of soluble salts, organic matter and carbonates.*

ISO 11465:1993, *Soil quality — Determination of dry matter and water content on a mass basis — Gravimetric method.*

### 3 Definitions

For the purposes of this part of ISO 14240, the following definitions apply.

#### 3.1 soil microbial biomass

mass of intact microbial cells in a given soil

NOTE — This parameter can be estimated from the measurement of the carbon or nitrogen content of these cells or by the measurement of their ability to mineralize an added carbon source. Dead cells and cell fragments may be detected when carbon or nitrogen analysis is used, but only intact cells will be detected when respiration is measured.

#### 3.2 soil respiration rate

volume of carbon dioxide released per unit mass of soil per unit time

1) To be published.