

STN	Kvalita pôdy Meranie profilov aktivity enzýmov vo vzorkách pôdy s použitím kolometrických substrátov na mikrojamkových platniach (ISO 20130: 2018)	STN EN ISO 20130 46 5263
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Soil quality - Measurement of enzyme activity patterns in soil samples using colorimetric substrates in micro-well plates (ISO 20130:2018)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 20130

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English Version

**Soil quality - Measurement of enzyme activity patterns in
soil samples using colorimetric substrates in micro-well
plates (ISO 20130:2018)**

Qualité du sol - Mesure de l'activité enzymatique dans
des échantillons de sol en utilisant des substrats
colorimétriques (ISO 20130:2018)

Bodenbeschaffenheit - Messung von
Enzymaktivitätsmustern in Bodenproben mit
kolorimetrischen Substraten in Mikrotiterplatten (ISO
20130:2018)

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EN ISO 20130:2020 (E)

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European foreword

The text of ISO 20130:2018 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 20130:2020 by Technical Committee CEN/TC 444 "Environmental characterization of solid matrices" the secretariat of which is held by NEN.

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Soil quality — Measurement of enzyme activity patterns in soil samples using colorimetric substrates in micro-well plates

*Qualité du sol — Mesure de l'activité enzymatique dans des
échantillons de sol en utilisant des substrats colorimétriques*



Reference number
ISO 20130:2018(E)

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ISO 20130:2018(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.

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

Introduction

Microorganisms are responsible for many key processes in the cycle of elements. Enzymes are responsible for the degradation of organic molecules and their mineralization. The main postulate is the microbial origin of soil enzymes, even if plant root exudates include enzymes. Extracellular enzymes in soil play key roles in the biodegradation of organic macromolecules. The simultaneous monitoring of several enzyme activities important in the biodegradation of organic compounds and mineralization of carbon, nitrogen, phosphorus and sulfur in soil may reveal harmful effects caused by chemicals and other anthropogenic impacts. However, the measurements carried out under selected laboratory conditions using artificial substrates cannot be a substitute for the actual rate of enzymatic processes in soil *in situ*.

Soil quality — Measurement of enzyme activity patterns in soil samples using colorimetric substrates in micro-well plates

1 Scope

This document specifies a method for the measurement of several hydrolase activities (arylamidase, arylsulfatase, β -galactosidase, α -glucosidase, β -glucosidase, N-acetyl-glucosaminidase, acid, alkaline and global phosphatases, urease) simultaneously (or not) in soil samples, using colorimetric substrates. Enzyme activities of soil vary seasonally and depend on soil chemical, physical and biological characteristics. This method can be applied either to detect harmful effects on soil enzyme activities derived from toxic substances or other anthropogenic agents in contaminated soils against a control soil, or to test chemicals.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 18400-206, *Soil quality — Sampling — Part 206: Collection, handling and storage of soil under aerobic conditions for the assessment of microbiological processes, biomass and diversity in the laboratory*

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