



# SLOVENSKI STANDARD SIST EN ISO 11063:2013

01-maj-2013

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## Kakovost tal - Metoda neposredne ekstrakcije DNK iz vzorcev tal (ISO 11063:2012)

Soil quality - Method to directly extract DNA from soil samples (ISO 11063:2012)

Bodenbeschaffenheit - Verfahren zur direkten Extraktion von DNA aus Bodenproben (ISO 11063:2012)

Qualité du sol - Méthode pour extraire directement l'ADN d'échantillons de sol (ISO 11063:2012)

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Ta slovenski standard je istoveten z: **EN ISO 11063:2013**

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### **ICS:**

13.080.30      Biološke lastnosti tal      Biological properties of soils

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EUROPEAN STANDARD

EN ISO 11063

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2013

ICS 13.080.30

English Version

## Soil quality - Method to directly extract DNA from soil samples (ISO 11063:2012)

Qualité du sol - Méthode pour extraire directement l'ADN  
d'échantillons de sol (ISO 11063:2012)

Bodenbeschaffenheit - Verfahren zur direkten Extraktion  
von DNA aus Bodenproben (ISO 11063:2012)

This European Standard was approved by CEN on 5 February 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

The text of ISO 11063:2012 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 11063:2013 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 August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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# INTERNATIONAL STANDARD

**ISO**  
**11063**

First edition  
2012-02-01

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## Soil quality — Method to directly extract DNA from soil samples

*Qualité du sol — Méthode pour extraire directement l'ADN  
d'échantillons de sol*

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Reference number  
ISO 11063:2012(E)

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Published in Switzerland



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## ISO 11063:2012(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 11063 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 4, *Biological methods*.

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## Introduction

DNA (deoxyribonucleic acid) is an essential component of any living organism coding for enzymes responsible for any biological activities. The study of DNA sequences from DNA sources extracted from different matrixes, by means of numerous molecular approaches, provides molecular markers that can be used to sharply distinguish and identify different organisms (bacteria, archaea and eucaryotes).

Up to now, most of the studies aiming to develop microbial soil quality indicators applicable to complex environments, such as soil, were biased by the unculturability of many microorganisms and the lack of sensitivity of traditional microbiological methods [16]. The recent development of numerous molecular biology methods based primarily on amplification of soil-extracted nucleic acids have provided a pertinent alternative to classical culture-based microbiological methods, providing unique insight into the composition, richness, and structure of microbial communities [15], [18], [26], [27], [36]. DNA-based approaches are now well-established in soil ecology and serve as genotypic (= molecular genetic) markers for determining microbial diversity.

The results of molecular analyses of soil microbial communities and/or populations rely on two main parameters:

- a) the extraction of DNA representative of the indigenous bacterial community composition;
- b) PCR bias, such as the choice of primers, the concentration of amplified DNA, errors in the PCR, or even the method chosen for analysis [23], [26], [38], [40]. Recently, numerous studies have investigated new methods to improve extraction, purification, amplification, and quantification of DNA from soils [20].

The aim of this International Standard is to describe the procedure used to extract DNA directly from soil samples. The reproducibility of this soil DNA extraction procedure was assessed in an international ring-test study (Annex A). The reproducibility of this soil DNA extraction procedure was successfully evaluated on both quantitative (q-PCR) and qualitative (A-RISA) approaches.

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