



# SLOVENSKI STANDARD SIST EN ISO 23753-1:2019

01-julij-2019

Nadomešča:

SIST EN ISO 23753-1:2011

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**Kakovost tal - Določevanje aktivnosti dehidrogenaze v tleh - 1. del: Metoda s trifeniltetrazolijevim kloridom (TTC) (ISO 23753-1:2019)**

Soil quality - Determination of dehydrogenases activity in soils - Part 1: Method using triphenyltetrazolium chloride (TTC) (ISO 23753-1:2019)

Bodenbeschaffenheit - Bestimmung der Dehydrogenaseaktivität in Böden - Teil 1: Verfahren mit Triphenyltetrazoliumchlorid (TTC) (ISO 23753-1:2019)

Qualité du sol - Détermination de l'activité des déshydrogénases dans les sols - Partie 1: Méthode au chlorure de triphényltétrazolium (CTT) (ISO 23753-1:2019)

**Ta slovenski standard je istoveten z: EN ISO 23753-1:2019**

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**ICS:**

13.080.30      Biološke lastnosti tal      Biological properties of soils

**SIST EN ISO 23753-1:2019**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 23753-1**

March 2019

ICS 13.080.30

Supersedes EN ISO 23753-1:2011

English Version

**Soil quality - Determination of dehydrogenases activity in soils - Part 1: Method using triphenyltetrazolium chloride (TTC) (ISO 23753-1:2019)**

Qualité du sol - Détermination de l'activité des déshydrogénases dans les sols - Partie 1: Méthode au chlorure de triphényltétrazolium (CTT) (ISO 23753-1:2019)

Bodenbeschaffenheit - Bestimmung der Dehydrogenaseaktivität in Böden - Teil 1: Verfahren mit Triphenyltetrazoliumchlorid (TTC) (ISO 23753-1:2019)

This European Standard was approved by CEN on 4 February 2019.

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## European foreword

This document (EN ISO 23753-1:2019) has been prepared by Technical Committee ISO/TC 190 "Soil quality" in collaboration with Technical Committee CEN/TC 444 "Test methods for 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of an identical text or by endorsement, at the latest by September 2019, and conflicting national standards shall be withdrawn at the latest by September 2019.

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.

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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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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INTERNATIONAL  
STANDARD

ISO  
23753-1

Second edition  
2019-02

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**Soil quality — Determination of  
dehydrogenases activity in soils —  
Part 1:  
Method using triphenyltetrazolium  
chloride (TTC)**

**iTeh STANDARD PREVIEW**  
*Qualité du sol — Détermination de l'activité des déshydrogénases  
dans les sols —  
Partie 1: Méthode au chlorure de triphényltétrazolium (CTT)*  
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## ISO 23753-1:2019(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.

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)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

This second edition cancels and replaces the first edition (ISO 23753-1:2005), which has been technically revised. The main changes compared to the previous edition are as follows:

- a new [Clause 5](#) "Limitations" has been added;
- in [Clause 6](#), reagents and their preparation have been updated to new results [e.g. use of less toxic solvent (ethanol), substrate concentration of 60 mmol/l of TTC, concentration of Tris buffer of 100 mmol/l at pH 7,6, incubation time of 6 h];
- [Tables 1](#) and [2](#) have been added;
- [Clause 10](#) "Validity criteria" has been added;
- a new [Annex A](#) "Results of modified parameters" has been added;
- [Clause 2](#) "Normative references" and the Bibliography have been updated.

A list of all the parts in the ISO 23753 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

The soil microflora is responsible for the decomposition and conversion of organic substances, carbon, nitrogen, sulfur and phosphorus cycles, soil aggregates stability and as a food source for microbivores. Dehydrogenases, as intracellular enzymes and respiratory chain components of the microbial cells, play a major role in the production of energy by organisms. They oxidize organic compounds by transferring electrons to an acceptor (e.g. NAD<sup>+</sup>). Dehydrogenases are essential components of the enzyme system of microorganisms. Dehydrogenases activity can therefore be used as an indicator of biological redox systems and as a measure of the viable and physiologically active soil microbial community.

Microbial oxidative activity in soil is linked to respiratory activity, which could be approached with the determination of dehydrogenases activity. Basal and induced respiration in soil could be affected by soil management, practices and contamination.

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