



BSI Standards Publication

Soil quality — Determination of dehydrogenases activity in soils

Part 1: Method using triphenyltetrazolium chloride (TTC)

National foreword

This British Standard is the UK implementation of EN ISO 23753-1:2019+A1:2020. It is identical to ISO 23753-1:2019, incorporating amendment 1:2020. It supersedes [BS EN ISO 23753-1:2019](#), which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EH/4, Soil quality.

A list of organizations represented on this committee can be obtained on request to its committee manager.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 539 11959 6

ICS 13.080.30

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2019.

Amendments/corrigenda issued since publication

Date	Text affected
30 November 2020	Implementation of ISO amendment 1:2020 with CEN endorsement A1:2020: replacement of Clause 9

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 triphényltétrazolum
(CTT) (ISO 23753-1:2019)

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

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

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



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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.

This document supersedes EN ISO 23753-1:2011.

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.

Endorsement notice

The text of ISO 23753-1:2019 has been approved by CEN as EN ISO 23753-1:2019 without any modification.

Foreword to amendment A1

This document (EN ISO 23753-1:2019/A1:2020) has been prepared by Technical Committee ISO/TC 190 "Soil quality" in collaboration with 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 May 2021, and conflicting national standards shall be withdrawn at the latest by May 2021.

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.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 23753-1:2019/Amd 1:2020 has been approved by CEN as EN ISO 23753-1:2019/A1:2020 without any modification.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Limitations	1
6 Reagents and materials	2
6.1 Soil	2
6.5 Analytical grade ethanol (96 %)	2
6.6 Triphenylformazan (TPF) solutions	2
7 Apparatus	3
7.1 Visible light spectrophotometer	3
7.2 pH meter	3
7.3 Suitable U-bottom tubes (35 to 50) ml, volumetric flasks, pipettes and cuvettes	3
8 Procedure	3
8.1 Establishment of standard curve	3
8.2 Sampling	3
9 Calculation	4
10 Validity criteria	4
10.1 Standard curve	4
10.2 Samples	4
11 Test report	5
Annex A (informative) Results of modified parameters	6
Bibliography	9

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).

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).

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.

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](http://www.iso.org/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.