BS EN ISO 23611-3:2019

BSI Standards Publication

Soil quality – Sampling of soil invertebrates

Part 3: Sampling and extraction of enchytraeids

bsi.

National foreword

This British Standard is the UK implementation of EN ISO 23611-3:2019. It is identical to ISO 23611-3:2019. It supersedes BS EN ISO 23611-3:2011, which is withdrawn.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 secretary.

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

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English Version

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Qualité du sol - Prélèvement des invertébrés du sol - Partie 3: Prélèvement et extraction des enchytréides (ISO 23611-3:2019)

Bodenbeschaffenheit - Probenahme von Wirbellosen im Boden - Teil 3: Probenahme und Bodenextraktion von Enchytraeen (ISO 23611-3:2019)

This European Standard was approved by CEN on 12 August 2019.

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

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European foreword

This document (EN ISO 23611-3:2019) 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of an identical text or by endorsement, at the latest by April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

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 23611-3:2011.

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, 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 23611-3:2019 has been approved by CEN as EN ISO 23611-3:2019 without any modification.

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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).

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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 23611-3:2007), which has been technically revised. The main changes to the previous edition are as follows:

— addition of examples of enchytraeid monitoring programmes (including presentation of their results) as an informative annex.

A list of all parts in the ISO 23611 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.

Introduction

This document has been developed to address a growing need for the standardization of terrestrial zoological field methods. Such methods, mainly covering the sampling, extraction and handling of soil invertebrates, are needed for the following purposes:

— biological classification of soils including soil quality assessment (e.g. References [4], [25], [27], [31], [36]);

— terrestrial bioindication and long-term monitoring (e.g. References [4], [30]);

— evaluation of the effects of chemicals on soil animals (References [18], [26], [28]).

Data for these purposes are gained by standardized methods since they can form the basis for far-reaching decisions (e.g. whether a given site should be remediated or not). In fact, the lack of such standardized methods is one of the most important reasons why biological classification concepts in terrestrial (i.e. soil) habitats have so far been relatively rarely used in comparison with aquatic sites.

Originally, the methods described here were developed for taxonomical and ecological studies, investigating the role of enchytraeids in various soil ecosystems. These animals without doubt belong to the most important soil invertebrates in temperate regions (mainly in acidic soils[7]). Their influence on soil functions like litter decomposition and nutrient cycling is well known[17][23]. Due to their often very high numbers, and their population biomass, they are also important in many terrestrial food-webs[6]. Some species have unintentionally been distributed by humans in many soils of the world.

Since it is neither possible nor useful to standardize methods for all soil organisms, the most important ones have been selected. Microbiological parameters are already covered by existing ISO standards (e.g. ISO 14240-1, ISO 14240-2, ISO 17601, ISO/TS 29843-1 and ISO/TS 29843-2.

INTERNATIONAL STANDARD **ISO 23611-3:2019(E)**

Soil quality — Sampling of soil invertebrates —

Part 3: Sampling and extraction of enchytraeids

1 Scope

This document specifies a method for sampling, handling and extracting enchytraeids from terrestrial field soils as a prerequisite for using these animals as bioindicators (e.g. to assess the quality of a soil as a habitat for organisms).

Basic information on the ecology of enchytraeids and their use as bioindicators in the terrestrial environment is included in the Bibliography.

This document applies to all terrestrial biotopes in which enchytraeids occur. The sampling design of field studies in general is given in ISO 18400-101. These details can vary according to the climatic/regional conditions of the site to be sampled and an overview on the determination of effects of pollutants on enchytraeids in field situations is given in Reference [6].

Methods for some other soil organism groups such as earthworms or arthropods are given in ISO 23611-1, ISO 23611-2, ISO 23611-4 and ISO 23611-5.

This document is not applicable for very wet or flooded soils and might be difficult to use under extreme climatic or geographical conditions (e.g. in high mountains).

When sampling soil invertebrates, it is highly recommendable to characterize the site (e.g. concerning soil properties, climate and land use). However, such a characterization is not covered by this document. ISO 10390, ISO 10694, ISO 11272, ISO 11274, ISO 11277, ISO 11461 and ISO 11465 are more suitable for measuring pH, particle size distribution, C/N ratio, organic carbon content and water-holding capacity.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at http://www.electropedia.org/

3.1
enchytraeid
small soil-inhabiting worm (a few millimetres to several centimetres in length) belonging to the family Enchytraeidae, class Oligochaeta, superclass Clitellata, phylum Annelida

Note 1 to entry: The common name for enchytraeid is potworm[35].

EXAMPLE Species of the genera *Enchytraeus, Fridericia* or *Cognettia*.