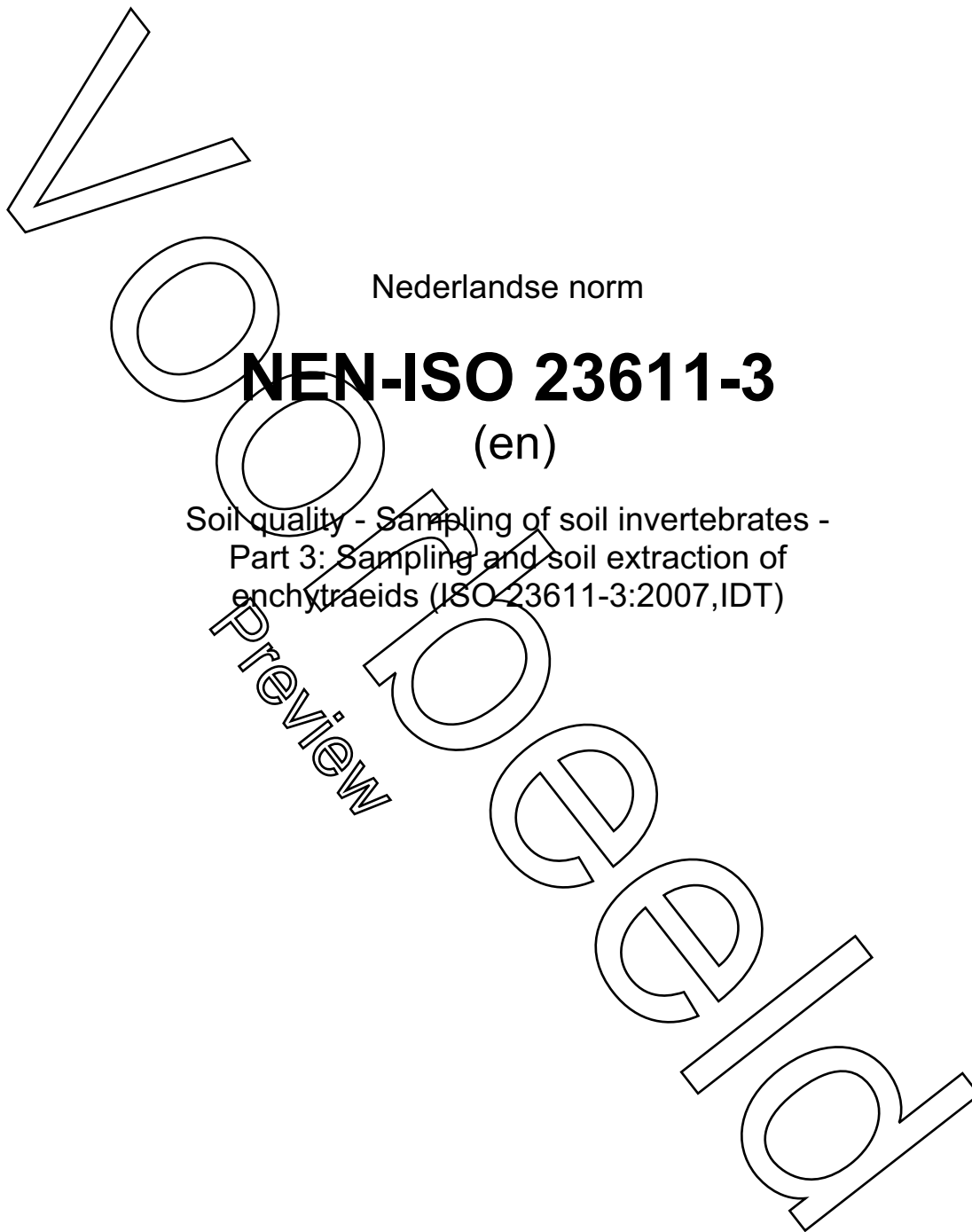


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Nederlandse norm

# **NEN-ISO 23611-3**

(en)

Soil quality - Sampling of soil invertebrates -  
Part 3: Sampling and soil extraction of  
enchytraeids (ISO 23611-3:2007, IDT)

ICS 13.080.05; 13.080.30

mei 2007

Als Nederlandse norm is aanvaard:

- ISO 23611-3:2007.IDT

Preview

Normcommissie 390 014 "Begeleidende OECD testrichtlijnen"

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**Soil quality — Sampling of soil  
invertebrates —**  
Part 3:  
**Sampling and soil extraction of  
enchytraeids**

*Qualité du sol — Prélèvement des invertébrés du sol —  
Partie 3: Prélèvement et extraction des enchytréides*



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Published in Switzerland

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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.

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 23611-3 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 4, *Biological methods*.

ISO 23611 consists of the following parts, under the general title *Soil quality — Sampling of soil invertebrates*:

- *Part 1: Hand-sorting and formalin extraction of earthworms*
- *Part 2: Sampling and extraction of micro-arthropods (Collembola and Acarina)*
- *Part 3: Sampling and soil extraction of enchytraeids*
- *Part 4: Sampling, extraction and identification of soil-inhabiting nematodes*

## Introduction

This part of ISO 23611 has been drawn up since there is 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 [21], [25], [27]);
- terrestrial bioindication and long-term monitoring (e.g. References [13], [26]);
- evaluation of the effects of chemicals on soil animals (References [15], [22]).

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 to 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<sup>[5]</sup>). Their influence on soil functions like litter decomposition and nutrient cycling is well known<sup>[14], [19]</sup>. Due to their number which is often very high (and to their population biomass), they are also important in many terrestrial food-webs<sup>[4]</sup>. Some species have unintentionally been distributed by man 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 guidelines (e.g. ISO 10381-6<sup>[29]</sup>, ISO 14240-1<sup>[37]</sup> and ISO 14240-2<sup>[38]</sup>).

Voorbereid  
Preview



# Soil quality — Sampling of soil invertebrates —

## Part 3: Sampling and soil extraction of enchytraeids

### 1 Scope

This part of ISO 23611 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 are included in the Bibliography.

This part of ISO 23611 applies to all terrestrial biotopes in which enchytraeids occur. The sampling design of field studies in general is specified in ISO 10381-1. 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 micro-arthropods are specified in ISO 23611-1 and ISO 23611-2.

This part of ISO 23611 is not applicable for semi-terrestrial (i.e. living in or close to the pure water) 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 climate and land use). However, such a characterization is not covered by this part of ISO 23611. 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 Terms and definitions

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

#### 2.1

##### enchytraeids

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

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

### 3 Principle

Enchytraeids at a certain site are sampled from the soil by using a split corer (diameter usually 3 cm to 6 cm). After sampling, the soil samples containing the enchytraeids are transported to the laboratory. Then the enchytraeids are extracted from soil by means of a wet extraction method. (This approach has been well-known for a long time [11], [17], [20].) After extraction, the enchytraeids are identified alive and, if required, preserved in such a way that they can be stored in a collection indefinitely (e.g. for taxonomical purposes).

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