



International
Standard

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**Second edition
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**Soil quality — Sampling of soil
invertebrates —**
Part 2:
**Sampling and extraction of micro-
arthropods (Collembola and
Acarina)**

Qualité du sol — Prélèvement des invertébrés du sol —
Partie 2: Prélèvement et extraction des micro-arthropodes
(Collembola et Acarina)



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Foreword

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This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 4, *Biological characterization*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 444, *Environmental characterization of solid matrices*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 23611-2:2006), which has been technically revised.

The main changes are as follows:

- an additional Note was added in [7.3.2.1](#) with the description of an alternative method to the classic pre-heating techniques for specimen preparation for Collembola taxonomic identification;
- the bibliographic references list was revised and updated.

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 was prepared in response to a growing need for the standardization of sampling and extraction methods of soil micro-arthropods. These methods are needed for the following purposes:

- biological classification of soils including soil quality assessment (e.g. References [19], [24], [27], [30], [36], [40], [41]);
- terrestrial bioindication and long-term monitoring (e.g. References [3], [12], [14], [19], [31], [34], [37]).

Data collected by standardized methods can be more accurately evaluated, allowing more reliable comparisons between sites (e.g. polluted versus non-polluted sites, changes in land-use practices).

From the several micro-arthropod groups, Collembola and Acarina are the most studied in soil ecology. Their relevance for the soil system comes from their high abundance and diversity, and also from their role in key biological processes. Collembola and Oribatid mites act mainly as catalysts in organic matter decomposition,^{[6],[21]} whereas predacious mites can act as webmasters in soil food webs.^{[21],[26]} These characteristics, allied to a widespread taxonomic knowledge, allow their use as study organisms in several research programmes dealing with the impacts of forest practices (e.g. References [8], [16], [17], [18], [22], [23], [24], [28], [29], [32], [33], [35], [42]) or crop management practices (e.g [2], [7], [10], [13], [20], [25], [43], [44]). These features make them suitable organisms to be used as bio-indicators of changes in soil quality, especially due to land-use practices and pollution^[38].

For the sampling design of field studies in general, see ISO 18400-104^[45] for general guidance on the development of site investigation strategies and detailed guidance on the development of sampling strategies.

Methods for other soil organism groups, such as earthworms, enchytraeids, nematodes and macro-invertebrates are covered in ISO 23611-1^[52], ISO 23611-3^[53], ISO 23611-4^[54] and ISO 23611-5^[55], respectively.