სსტ ისო 23646:2022/2025

საქართველოს სტანდარტი

სსკ: 13.080.10

ნიადაგის ხარისხი — ქლორორგანული პესტიციდების განსაზღვრა გაზის ქრომატოგრაფიით მასის სელექციური გამოვლენა (GC-MS) და გაზის ქრომატოგრაფიით ელექტრონის დაჭერის გამოვლენა (GC-ECD)

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საინფორმაციო მონაცემები

1 მიღებულია და დაშვებულია სამოქმედოდ: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს გენერალური დირექტორის 13/02/2025 წლის № 9 განკარგულებით

2 მიღებულია „თავფურცლის“ თარგმნის მეთოდით: სტანდარტიზაციის საერთაშორისო ორგანიზაციის (ისო) სტანდარტი ისო 23646:2022 ,, ნიადაგის ხარისხი — ქლორორგანული პესტიციდების განსაზღვრა გაზის ქრომატოგრაფიით მასის სელექციური გამოვლენა (GC-MS) და გაზის ქრომატოგრაფიით ელექტრონის დაჭერის გამოვლენა (GC-ECD)”

3 პირველად

4 რეგისტრირებულია: სსიპ-საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 13/02/2025 წლის №268-1.3-041703

INTERNATIONAL STANDARD

ISO 23646

First edition
2022-01

Soil quality — Determination of organochlorine pesticides by gas chromatography with mass selective detection (GC-MS) and gas chromatography with electron-capture detection (GC-ECD)

Qualité du sol — Détermination des pesticides organochlorés par chromatographie en phase gazeuse avec détection sélective de masse (CG-SM) et chromatographie en phase gazeuse avec détection par capture d'électrons (GC-ECD)

Reference number
ISO 23646:2022(E)

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Published in Switzerland

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Foreword

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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).

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For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 3, *Chemical and physical characterization*.

This first edition cancels and replaces ISO 10382:2002, which has been technically revised.

The main changes are as follows:

— polychlorinated biphenyls have been deleted from the Scope;

— modern extraction techniques and commonly used methods with optimized extraction time, proven clean-up methods and state of the art quantification methods have been added.

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

Organochlorine pesticides (OCPs) are organic synthetic substances which are globally used. The vast majority of OCPs have been released directly in the environment as agricultural insecticides but they have been also used as by-products for different applications, e.g. as a wood preserver. OCPs are persistent, bioaccumulating and prone to long-range atmospheric transport and deposition. They are ubiquitous in the environment (water, soil, sediment and waste) and their presence is regularly monitored and controlled.

This document describes the determination of OCPs in soil and sediments. At present, determination of OCPs is carried out in these matrices in most of the routine laboratories following the preceding steps for sampling, pretreatment, extraction and clean-up by measurement of a specific OCP by means of gas chromatography in combination with mass spectrometric detection (GC-MS) or gas chromatography with electron capture detector (GC-ECD). GC-MS/MS is also applicable (see Annex C for an example of GC-MS/MS measurement conditions for OCPs). The described analytical steps are also applicable for the determination of polychlorinated biphenyls (PCBs). However, for the determination of PCBs, a specific European Standard, EN 17322, is available. Both standards are very similar; differences exist especially in a broader variety of clean-up steps for PCBs.

Considering the different matrices and possible interfering compounds, this document does not contain one single possible way of working. Several choices are possible, in particular relating to clean-up. Detection with both mass spectrometry and electron capture is possible. Three different extraction procedures and four clean-up procedures are described. The use of internal and injection standards is described in order to have an internal check on the choice of the extraction and clean-up procedure.

This document is applicable and validated for several types of matrices as indicated in Table 1 (see also Annex A for the results of the validation).

Table 1 — Matrices for which this document is applicable and validated

Matrix	Materials used for validation
Soil	Sandy soil, contaminated with OCPs Soil from the vicinity of Berlin
Humic rich soil	Humic rich soil Mix of soil from the vicinity of Berlin, Germany and PCB-free German reference soil
Sediment	Validation results from ISO 10382 (WC 102 and WC 106)