SLOVENSKI STANDARD
SIST EN ISO 23161:2019

01-februar-2019

Nadomešča:
SIST EN ISO 23161:2012

Kakovost tal - Določevanje izbranih organokositrovih spojin - Metoda plinske kromatografije (ISO 23161:2018)

Soil quality - Determination of selected organotin compounds - Gas-chromatographic method (ISO 23161:2018)

Bodenbeschaffenheit - Bestimmung ausgewählter Organozinnverbindungen - Gaschromatographisches Verfahren (ISO 23161:2018)

Qualité du sol - Dosage d'une sélection de composés organostanniques - Méthode par chromatographie en phase gazeuse (ISO 23161:2018)

Ta slovenski standard je istoveten z: **EN ISO 23161:2018**

ICS:

13.080.10	Kemijske značilnosti tal	Chemical characteristics of soils
71.040.50	Fizikalnokemijske analitske metode	Physicochemical methods of analysis

SIST EN ISO 23161:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 23161

November 2018

ICS 13.080.10

Supersedes EN ISO 23161:2011

English Version

Soil quality - Determination of selected organotin compounds - Gas-chromatographic method (ISO 23161:2018)

Qualité du sol - Dosage d'une sélection de composés organostanniques - Méthode par chromatographie en phase gazeuse (ISO 23161:2018)

Bodenbeschaffenheit - Bestimmung ausgewählter Organozinnverbindungen - Gaschromatographisches Verfahren (ISO 23161:2018)

This European Standard was approved by CEN on 31 August 2018.

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

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

Ref. No. EN ISO 23161:2018 E

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European foreword

This document (EN ISO 23161:2018) 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of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.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 23161:2011.

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Endorsement notice

The text of ISO 23161:2018 has been approved by CEN as EN ISO 23161:2018 without any modification.

INTERNATIONAL STANDARD

ISO 23161

Second edition
2018-10

Soil quality — Determination of selected organotin compounds — Gas-chromatographic method

Qualité du sol — Dosage d'une sélection de composés organostanniques — Méthode par chromatographie en phase gazeuse

Reference number
ISO 23161:2018(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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.

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 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 methods and soil characteristics*.

This second edition cancels and replaces the first edition (ISO 23161:2009), which has been technically revised.

The main changes compared to the previous edition are as follows:

— note in Clause 1 (converted to normal text) and Table 2 have been moved to Clause 4;

— former Note 4 in Clause 4 has been changed to normal text and moved above Note 1;

— other pretreatment procedures allowed in Clause 4 and in 7.1;

— former second sentence in 5.5.5 has been changed to Note;

— storage conditions has been changed to be consistent with ISO 5667-15;

— the Bibliography has been updated.

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.

Soil quality — Determination of selected organotin compounds — Gas-chromatographic method

WARNING — Persons using this document should be familiar with usual laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices.

IMPORTANT — It is absolutely essential that tests, conducted in accordance with this document, be carried out by suitably qualified staff. It can be noted whether, and to what extent, particular problems will require the specification of additional boundary conditions.

1 Scope

This document specifies a gas-chromatographic method for the identification and quantification of organotin compounds (OTCs) in soils as specified in Table 1.

This document is also applicable to samples from sediments, sludges and wastes (soil-like materials).

The working range depends on the detection technique used and the amount of sample taken for analysis.

The limit of quantification for each compound is about 10 µg/kg.

Table 1 — Organotin compounds

$R_nSn^{(4-n)+}$	R	n	Name	Acronym
Organotin cations[a]				
$BuSn^{3+}$	Butyl	1	Monobutyltin cation	MBT
Bu_2Sn^{2+}	Butyl	2	Dibutyltin cation	DBT
Bu_3Sn^{+}	Butyl	3	Tributyltin cation	TBT
$OcSn^{3+}$	Octyl	1	Monooctyltin cation	MOT
Oc_2Sn^{2+}	Octyl	2	Dioctyltin cation	DOT
Ph_3Sn^{+}	Phenyl	3	Triphenyltin cation	TPhT
Cy_3Sn^{+}	Cyclohexyl	3	Tricyclohexyltin cation	TCyT
Peralkylated organotin				
Bu_4Sn	Butyl	4	Tetrabutyltin	TTBT

[a] Organotin compounds are measured after derivatization.

Organotin cations can only be determined in accordance with this document after derivatization. The anionic part bound to the organotin cation is mainly dependent on the chemical environment and is not determined using this method. The peralkylated organotin compounds behave in a completely different way from their parent compounds. Tetraalkylated organotin compounds which are already peralkylated, such as tetrabutyltin, are determined directly without derivatization.

The properties such as particle size distribution, water content and organic matter content of the solids to be analysed using this document vary widely. Sample pretreatment is designed adequately with respect to both the properties of the organotin compounds and the matrix to be analysed.