

## SLOVENSKI STANDARD

**SIST EN ISO 16133:2019**

**01-marec-2019**

**Nadomešča:**

**SIST EN ISO 16133:2011**

**SIST ISO 16133:2006**

---

**Kakovost tal - Navodilo za vzpostavitev in vzdrževanje programov monitoringa  
(ISO 16133:2018)**

Soil quality - Guidance on the establishment and maintenance of monitoring programmes  
(ISO 16133:2018)

### iTeh STANDARD PREVIEW

Bodenbeschaffenheit - Leitfaden zur Einrichtung und zum Betrieb von  
*(Standard.iTeh.ai)* Beobachtungsprogrammen (ISO 16133:2018)

[SIST EN ISO 16133:2019](#)

Qualité du sol - Lignes directrices pour l'établissement et l'entretien de programmes de  
surveillance (ISO 16133:2018) <https://standards.iteh.ai/catalog/standards/ist/16001bd3-5b40-4056-b826-c4cc4cf130f6/sist-en-iso-16133-2019>

**Ta slovenski standard je istoveten z: EN ISO 16133:2018**

---

#### ICS:

13.080.05 Preiskava tal na splošno Examination of soils in general

**SIST EN ISO 16133:2019 en,fr,de**

**iTeh STANDARD PREVIEW  
(standards.iteh.ai)**

SIST EN ISO 16133:2019

<https://standards.iteh.ai/catalog/standards/sist/1fc0dbd3-5bd9-495f-b836-c4cc4cff30f6/sist-en-iso-16133-2019>

**EUROPEAN STANDARD**  
**NORME EUROPÉENNE**  
**EUROPÄISCHE NORM**

**EN ISO 16133**

December 2018

ICS 13.080.01

Supersedes EN ISO 16133:2011

English Version

**Soil quality - Guidance on the establishment and  
 maintenance of monitoring programmes (ISO  
 16133:2018)**

Qualité du sol - Lignes directrices pour l'établissement  
 et l'entretien de programmes de surveillance (ISO  
 16133:2018)

Bodenbeschaffenheit - Leitfaden zur Einrichtung und  
 zum Betrieb von Beobachtungsprogrammen (ISO  
 16133:2018)

This European Standard was approved by CEN on 8 December 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

**iTeh STANDARD PREVIEW**

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

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

Contents	Page
European foreword.....	3

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 16133:2019  
<https://standards.iteh.ai/catalog/standards/sist/1fc0dbd3-5bd9-495f-b836-c4cc4cff30f6/sist-en-iso-16133-2019>

## European foreword

This document (EN ISO 16133:2018) has been prepared by Technical Committee ISO/TC 190 "Soil quality" in collaboration with Technical Committee CEN/TC 345 "Characterization of soils" 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 June 2019, and conflicting national standards shall be withdrawn at the latest by June 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 16133:2011.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## iTeh STANDARD PREVIEW Endorsement notice (standards.iteh.ai)

The text of ISO 16133:2018 has been approved by CEN as EN ISO 16133:2018 without any modification.

SIST EN ISO 16133:2019

<https://standards.iteh.ai/catalog/standards/sist/1fc0dbd3-5bd9-495f-b836-c4cc4cff30f6/sist-en-iso-16133-2019>

**iTeh STANDARD PREVIEW  
(standards.iteh.ai)**

SIST EN ISO 16133:2019

<https://standards.iteh.ai/catalog/standards/sist/1fc0dbd3-5bd9-495f-b836-c4cc4cff30f6/sist-en-iso-16133-2019>

# INTERNATIONAL STANDARD

ISO  
**16133**

Second edition  
2018-12

---

---

---

## **Soil quality — Guidance on the establishment and maintenance of monitoring programmes**

*Qualité du sol — Lignes directrices pour l'établissement et l'entretien  
de programmes de surveillance*

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN ISO 16133:2019  
<https://standards.iteh.ai/catalog/standards/sist/1fc0dbd3-5bd9-495f-b836-c4cc4cff30f6/sist-en-iso-16133-2019>



Reference number  
ISO 16133:2018(E)

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 16133:2019

<https://standards.iteh.ai/catalog/standards/sist/1fc0dbd3-5bd9-495f-b836-c4cc4cff30f6/sist-en-iso-16133-2019>



## COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

	Page
<b>Foreword</b>	<b>iv</b>
<b>Introduction</b>	<b>v</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>1</b>
<b>4 Monitoring objectives</b>	<b>2</b>
4.1 General	2
4.2 Examples of monitoring purposes	2
<b>5 Monitoring programme</b>	<b>3</b>
5.1 General considerations	3
5.2 Elements of a monitoring programme	4
5.2.1 Status of the monitoring sites	4
5.2.2 Changes at the monitoring sites	4
5.2.3 Interpretation of status and changes	4
5.2.4 Statistical sampling design	4
5.2.5 Selection of sites in space	5
5.2.6 Resampling in time	5
5.3 Sampling and measurement	6
5.3.1 General	6
5.3.2 Site design and identification	6
5.3.3 Soil and site description	6
5.3.4 Sampling	6
5.3.5 Field and laboratory measurements	6
5.3.6 Specimen banking	6
5.3.7 Time interval between samplings	7
5.3.7 <small>SIST EN ISO 16133:2019 https://standards.iteh.ai/catalog/standards/ist_en-16133-5bd9-495f-b836-c4cc4cf30f6/sist-en-iso-16133-2019</small>	<small>7</small>
<b>6 Data quality and quantity</b>	<b>7</b>
<b>Bibliography</b>	<b>9</b>

## 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](http://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](http://www.iso.org/patents)).

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](http://www.iso.org/iso/foreword.html). **(standards.iteh.ai)**

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Impact assessment*.

<https://standards.iteh.ai/catalog/standards/sist/1fc0dbd3-5bd9-495f-b836-04e4701d4208>

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](http://www.iso.org/members.html).

This second edition cancels and replaces the first edition (ISO 16133:2004), which has been technically revised. The main changes compared to the previous edition are as follows:

- [Clause 2](#) has been updated;
- [Clause 3](#) has been updated, definitions that were not used in the document have been deleted;
- new subclauses have been introduced regarding sampling designs ([5.2.4](#)), sampling in space ([5.2.5](#)) and in time ([5.2.6](#));
- all examples of monitoring programmes described in Annex A have been deleted as part were outdated.

## Introduction

Monitoring is the process of repetitive observation, for defined purposes, of one or more components of the environment according to pre-arranged schedules in space and time using comparable methods for environmental sensing and data collection<sup>[14][15]</sup>. Monitoring schemes are used all over the world for a large number of purposes. Soil monitoring, particularly, is a long-term undertaking. The quality and the utility of the information from the monitoring is to a large degree determined by the choice of monitoring sites and by their maintenance over the years, and by appropriate quality control at all stages of the process.

Monitoring associated with industrial (contaminated) sites can involve many specific considerations, including legal requirements. The guidance in this document is not designed or intended to cover such situations.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 16133:2019

<https://standards.iteh.ai/catalog/standards/sist/1fc0dbd3-5bd9-495f-b836-c4cc4cff30f6/sist-en-iso-16133-2019>