

Soil quality - Leaching procedures for subsequent chemical and ecotoxicological testing of soil and soil materials - Part 4: Influence of pH on leaching with initial acid/base addition (ISO/TS 21268-4:2007)

Bodenbeschaffenheit - Eluierungsverfahren für die anschließende chemische und ökotoxikologische Untersuchung von Boden und von Bodenmaterialien - Teil 4: Einfluss des pH-Wertes unter vorheriger Säure/Base-Zugabe (ISO/TS 21268-4:2007)

Qualité du sol - Modes opératoires de lixiviation en vue d'essais chimiques et écotoxicologiques ultérieurs des sols et matériaux du sol - Partie 4: Essai de dépendance au pH avec ajout initial d'acide/base (ISO/TS 21268-4:2007)

Ta slovenski standard je istoveten z: CEN ISO/TS 21268-4:2009

ICS:

13.080.05 Preiskava tal na splošno Examination of soils in general

SIST-TS CEN ISO/TS 21268-4:2010 en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 21268-4:2010](https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010)

<https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010>

TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN ISO/TS 21268-4

November 2009

ICS 13.080.05

English Version

Soil quality - Leaching procedures for subsequent chemical and
ecotoxicological testing of soil and soil materials - Part 4:
Influence of pH on leaching with initial acid/base addition
(ISO/TS 21268-4:2007)

Qualité du sol - Modes opératoires de lixiviation en vue
d'essais chimiques et écotoxicologiques ultérieurs des sols
et matériaux du sol - Partie 4: Essai de dépendance au pH
avec ajout initial d'acide/base (ISO/TS 21268-4:2007)

Bodenbeschaffenheit - Eluierungsverfahren für die
anschließende chemische und ökotoxikologische
Untersuchung von Boden und von Bodenmaterialien - Teil
4: Einfluss des pH-Wertes unter vorheriger Säure/Base-
Zugabe (ISO/TS 21268-4:2007)

This Technical Specification (CEN/TS) was approved by CEN on 8 September 2009 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....3

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

[SIST-TS CEN ISO/TS 21268-4:2010](https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010)
<https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010>

Foreword

The text of ISO/TS 21268-4:2007 has been prepared by Technical Committee ISO/TC 190 “Soil quality” of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TS 21268-4:2009 by Technical Committee CEN/TC 345 “Characterization of soils” the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO/TS 21268-4:2007 has been approved by CEN as a CEN ISO/TS 21268-4:2009 without any modification.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 21268-4:2010](https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010)

<https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 21268-4:2010](https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010)

<https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010>

TECHNICAL
SPECIFICATIONISO/TS
21268-4First edition
2007-11-15

**Soil quality — Leaching procedures
for subsequent chemical
and ecotoxicological testing of soil
and soil materials —**

Part 4:

**Influence of pH on leaching with initial
acid/base addition****(standards.iteh.ai)***Qualité du sol — Modes opératoires de lixiviation en vue d'essais
chimiques et écotoxicologiques ultérieurs des sols et matériaux du
sol —*<https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810->*Partie 4: Essai de dépendance au pH avec ajout initial d'acide/base*Reference number
ISO/TS 21268-4:2007(E)

© ISO 2007

ISO/TS 21268-4:2007(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST-TS CEN ISO/TS 21268-4:2010](https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010)

<https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010>

**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2007

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	2
4 Symbols and abbreviations	3
5 Principle.....	4
6 Apparatus	4
7 Reagents.....	6
8 Sample pretreatment	6
8.1 Sample size	6
8.2 Particle size reduction.....	6
8.3 Determination of the dry matter content and of water content.....	7
8.4 Preparation of test portion.....	7
9 Procedure	7
9.1 Contact time	7
9.2 pH-range	8
9.3 Leaching test.....	8
9.3.1 General.....	8
9.3.2 Preparation of leachant.....	8
9.3.3 Leaching procedure.....	9
9.4 Natural pH.....	11
10 Eluate treatment, storage and analysis	11
11 Analytical determination	12
12 Blank test.....	12
13 Calculation.....	12
14 Test report	13
15 Performance characteristics	13
Annex A (informative) Example of a specific liquid-solid separation procedure for soil sample.....	14
Annex B (informative) Operation and uses of the test: influence of pH on the leaching behaviour	15
Annex C (informative) Preliminary determination of the acid/base consumption.....	19
Bibliography	23

ISO/TS 21268-4:2007(E)

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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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/TS 21268-4 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Soil and site assessment*.

ISO/TS 21268 consists of the following parts, under the general title *Soil quality — Leaching procedures for subsequent chemical and ecotoxicological testing of soil and soil materials*:

- *Part 1: Batch test using a liquid to solid ratio of 2 l/kg dry matter*
- *Part 2: Batch test using a liquid to solid ratio of 10 l/kg dry matter*
- *Part 3: Up-flow percolation test*
- *Part 4: Influence of pH on leaching with initial acid/base addition*

Introduction

In various countries, tests have been developed to characterize and assess the constituents that can be released from materials. The release of soluble constituents upon contact with water is regarded as a main mechanism of release, resulting in a potential risk to the environment during the use or disposal of materials. The intent of these tests is to identify the leaching properties of materials. The complexity of the leaching process makes simplifications necessary.

Not all of the relevant aspects of leaching behaviour can be addressed in one standard.

Tests to characterize the behaviour of materials can generally be divided into three categories (see References [1], [2] and [4]). The relationships between these tests are summarized below.

- a) "Basic characterization" tests are used to obtain information on the short- and long-term leaching behaviour and characteristic properties of materials. Liquid/solid (L/S) ratios, leachant composition, factors controlling leachability, such as pH, redox potential, complexing capacity, role of dissolved organic carbon (DOC), ageing of material and physical parameters, are addressed in these defined tests.
- b) "Compliance" tests are used to determine whether the material complies with a specific behaviour or with specific reference values. These tests focus on key variables and leaching behaviour previously identified by basic characterization tests.
- c) "On-site verification" tests are used as a rapid check to confirm that the material is the same as that which has been subjected to the compliance test(s). On-site verification tests are not necessarily leaching tests.

The test procedure described in this method belongs to category a) "Basic characterization" tests.

NOTE Up to now, the test procedures described in this part of ISO/TS 21268 have not been validated.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 21268-4:2010](https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010)

<https://standards.iteh.ai/catalog/standards/sist/bf3ef596-9af4-44ca-b810-eeb025bcfddb/sist-ts-cen-iso-ts-21268-4-2010>