SLOVENSKI STANDARD
SIST EN ISO 12782-3:2013

01-maj-2013

Kakovost tal - Parametri geokemijskega modeliranja izpiranja in speciacija sestavin v tleh in talnih materialih - 3. del: Ekstrakcija aluminijevih oksidov in hidroksidov z amonijevim oksalatom/oksalno kislino (ISO 12782-3:2012)

Soil quality - Parameters for geochemical modelling of leaching and speciation of constituents in soils and materials - Part 3: Extraction of aluminium oxides and hydroxides with ammonium oxalate/oxalic acid (ISO 12782-3:2012)

Bodenbeschaffenheit - Parameter zur geochemischen Modellierung der Elution und Speziation von Bestandteilen in Böden und Materialien - Teil 3: Extraktion von Aluminium (hydr)oxiden mittels Ammoniumoxalat-Oxalsäure (ISO 12782-3:2012)

Qualité du sol - Paramètres pour la modélisation géochimique de la lixiviation et de la spéciation des constituants des sols et des matériaux - Partie 3: Extraction des oxydes et hydroxydes d'aluminium à l'acide oxalique et à l'oxalate d'ammonium (ISO 12782-3:2012)

Ta slovenski standard je istoveten z: **EN ISO 12782-3:2012**

ICS:

13.080.10	Kemijske značilnosti tal	Chemical characteristics of soils

SIST EN ISO 12782-3:2013 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 12782-3

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ICS 13.080.05

English Version

Soil quality - Parameters for geochemical modelling of leaching and speciation of constituents in soils and materials - Part 3: Extraction of aluminium oxides and hydroxides with ammonium oxalate/oxalic acid (ISO 12782-3:2012)

Qualité du sol - Paramètres pour la modélisation géochimique de la lixiviation et de la spéciation des constituants des sols et des matériaux - Partie 3: Extraction des oxydes et hydroxydes d'aluminium à l'acide oxalique et à l'oxalate d'ammonium (ISO 12782-3:2012)

Bodenbeschaffenheit - Parameter zur geochemischen Modellierung der Elution und Speziation von Bestandteilen in Böden und Materialien - Teil 3: Extraktion von Aluminiumoxiden und -hydroxiden mittels Ammoniumoxalat/Oxalsäure (ISO 12782-3:2012)

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 12782-3:2012) 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 December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

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Endorsement notice

The text of ISO 12782-3:2012 has been approved by CEN as a EN ISO 12782-3:2012 without any modification.

INTERNATIONAL STANDARD

ISO 12782-3

First edition
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Soil quality — Parameters for geochemical modelling of leaching and speciation of constituents in soils and materials —

Part 3:
Extraction of aluminium oxides and hydroxides with ammonium oxalate/oxalic acid

Qualité du sol — Paramètres pour la modélisation géochimique de la lixiviation et de la spéciation des constituants des sols et des matériaux —

Partie 3: Extraction des oxydes et hydroxydes d'aluminium à l'acide oxalique et à l'oxalate d'ammonium

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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.

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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.

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ISO 12782-3 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Soil and site assessment*.

ISO 12782 consists of the following parts, under the general title *Soil quality — Parameters for geochemical modelling of leaching and speciation of constituents in soils and materials*:

— *Part 1: Extraction of amorphous iron oxides and hydroxides with ascorbic acid*

— *Part 2: Extraction of crystalline iron oxides and hydroxides with dithionite*

— *Part 3: Extraction of aluminium oxides and hydroxides with ammonium oxalate/oxalic acid*

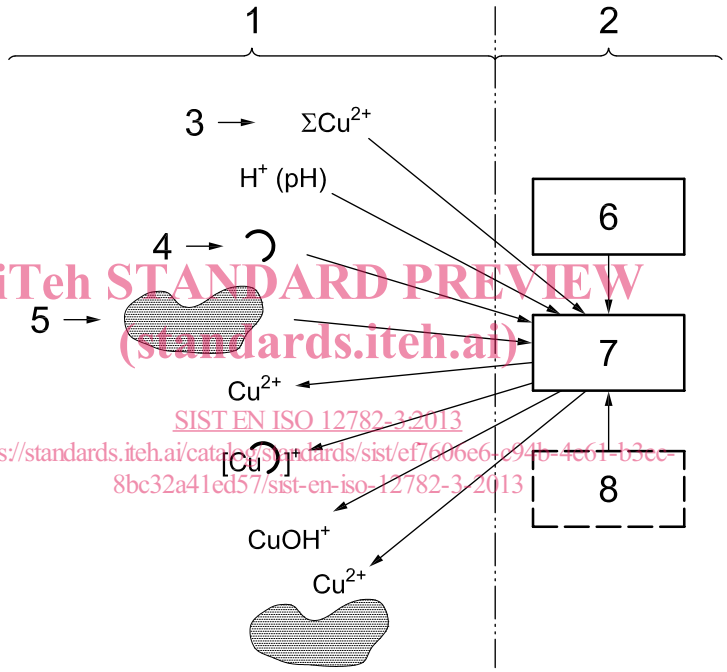
— *Part 4: Extraction of humic substances from solid samples*

— *Part 5: Extraction of humic substances from aqueous samples*

Introduction

In addition to leaching procedures for subsequent chemical and ecotoxicological testing of soil and other materials including waste, predictive models are becoming indispensable tools in the environmental risk assessment of these materials. Models are particularly required when the results of laboratory leaching tests are to be translated to specific scenarios in the field, with regard to assessing the risks of both contaminant migration and bioavailability.

In the past few years, geochemical models have been shown to be valuable tools to be combined with the data obtained from characterization leaching standards. such as pH-dependence and percolation tests. These models have the advantage of being based on fundamental thermodynamic parameters that have a general validity. In order to enable extrapolation of laboratory leaching data to the mobility and/or bioavailability of a constituent in a specific field scenario, these models require additional input parameters for specific soil properties (see Figure 1).



Key

1 experiment
2 geochemical speciation modelling
3 available metal concentration
4 dissolved humic substances
5 reactive (solid) surfaces
6 database with stability constants
7 computer program
8 assumptions

Figure 1 — Relationships between experimental data, as obtained from laboratory leaching/extraction tests, and geochemical modelling of the speciation of a heavy metal in the environment (modified after M. Gfeller & R. Schulin, ETH, Zürich)

Characterization leaching standards provide information on the concentrations of the contaminant of interest as a function of, in particular, pH and liquid/solid (L/S) ratio. In addition, a more complete analysis of the leachates also provides information on the major ion composition and dissolved organic carbon (DOC), parameters that are particularly important for the chemical speciation of constituents through processes such as precipitation, complexation and competition for adsorption on reactive mineral and organic surfaces in the soil. As illustrated