
Soil quality — Extraction of trace elements using dilute nitric acid

Qualité du sol — Extraction d'éléments traces à l'aide d'acide nitrique dilué



This document is a preview generated by EBS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Interferences	2
6 Reagents	2
7 Apparatus	2
8 Procedure	3
8.1 Sample preparation	3
8.2 Determining water content.....	3
8.3 Extraction.....	3
8.4 Phase separation.....	4
8.5 Blank test.....	4
8.6 Measurement of trace elements.....	4
9 Calculation	4
10 Expression of results	5
11 Test report	5
Annex A (informative) Precision	7
Annex B (informative) Notes on homogenization, initial sample mass and extraction	13
Bibliography	14

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).

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).

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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 190, *Soil quality*, Subcommittee SC 3, *Chemical methods and soil characteristics*.

Soil quality — Extraction of trace elements using dilute nitric acid

WARNING — Users of this International Standard should be familiar with usual laboratory practice. This International Standard does not 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 and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted according to this International Standard be carried out by suitably trained staff.

1 Scope

This International Standard specifies a method of extracting trace elements from soil at approximately pH 0,5 using a dilute nitric acid solution. Using this method the potential environmental available trace elements as defined in ISO 17402 is extracted.

The method is applicable for all soils and soil like materials.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11464, *Soil quality — Pretreatment of samples for physico-chemical analysis*

ISO 11465, *Soil quality — Determination of dry matter and water content on a mass basis — Gravimetric method*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

test portion

analytical portion

quantity of material, of proper size, for measurement of the concentration or other property of interest, removed from the test sample

Note 1 to entry: The test portion may be taken from the field sample or from the laboratory sample directly if no preparation of the sample is required (e.g. with liquids), but usually it is taken from the prepared test sample.

Note 2 to entry: A unit or increment of proper homogeneity, size, and fineness, needing no further preparation, may be a test portion.

[SOURCE: ISO 11074:2005, 4.3.13]

4 Principle

The soil sample with particle size of <2 mm is extracted with $(0,43 \pm 0,02)$ mol/l nitric acid solution at a soil:solution ratio of 1:10 (m/V) for four hours at (20 ± 2) °C. After centrifugation of the suspension,