Irish Standard
I.S. EN ISO 11269-2:2013

Soil quality - Determination of the effects of pollutants on soil flora - Part 2: Effects of contaminated soil on the emergence and early growth of higher plants (ISO 11269-2:2012)

I.S. EN ISO 11269-2:2013

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EUROPEAN STANDARD

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English Version

Soil quality - Determination of the effects of pollutants on soil flora - Part 2: Effects of contaminated soil on the emergence and early growth of higher plants (ISO 11269-2:2012)

Qualité du sol - Détermination des effets des polluants sur la flore du sol - Partie 2: Effets des sols contaminés sur l'émergence et la croissance des végétaux supérieurs (ISO 11269-2:2012)

Bodenbeschaffenheit - Bestimmung der Wirkungen von Schadstoffen auf die Bodenflora - Teil 2: Wirkung von verunreinigten Böden auf Saatauflauf und frühes Wachstum höherer Pflanzen (ISO 11269-2:2012)

This European Standard was approved by CEN on 5 February 2013.

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

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Foreword

The text of ISO 11269-2:2012 has been prepared by Technical Committee ISO/TC 190 “Soil quality” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 11269-2:2013 by 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of an identical text or by endorsement, at the latest by August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

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.

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Endorsement notice

The text of ISO 11269-2:2012 has been approved by CEN as EN ISO 11269-2:2013 without any modification.

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I.S. EN ISO 11269-2:2013

INTERNATIONAL STANDARD

ISO 11269-2

Third edition
2012-01-15

Soil quality — Determination of the effects of pollutants on soil flora —

Part 2: Effects of contaminated soil on the emergence and early growth of higher plants

Qualité du sol — Détermination des effets des polluants sur la flore du sol —

Partie 2: Effets des sols contaminés sur l'émergence et la croissance des végétaux supérieurs

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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.

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.

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ISO 11269-2 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 4, *Biological methods*.

This third edition cancels and replaces the second edition (ISO 11269-2:2005), which has been technically revised.

ISO 11269 consists of the following parts, under the general title *Soil quality — Determination of the effects of pollutants on soil flora*:

— *Part 1: Method for the measurement of inhibition of root growth*

— *Part 2: Effects of contaminated soil on the emergence and early growth of higher plants*

Introduction

This part of ISO 11269 describes a procedure for evaluating the quality of soils of different origin carrying unknown contaminations. The evaluation of the effects on plant growth is based on emergence and inhibitory effects on early growth of at least two species of higher plants. Guidance for assessing potential effects of substances on seedling emergence and growth is given in OECD Guideline 208[14].

This part of ISO 11269 refers closely to ISO 22030 and is based on:

a) results from the German research project "Entwicklung eines innovativen und technischen Instrumentariums zur Optimierung der ökotoxikologischen Bewertung von Böden im Hinblick auf Sanierungsziele und Schutzerfordernisse";

b) discussions within the joint project "Ecotoxicological Test Batteries" forming part of the BMBF Joint Research Group "Processes for the Bioremediation of Soil"[23];

c) results from the BMBF Joint Research Group ERNTE "Erprobung und Vorbereitung einer praktischen Nutzung ökotoxikologischer Testsysteme"[17];

d) ring-test results of "Ecotoxicological Characterisation of Waste — Results and Experiences from an International Ring Test"[8].

Plant growth can be influenced strongly by soil properties such as texture, pH or levels of nutrients. When testing natural soils either reference soils (uncontaminated soils with the same properties as the test soil) or standard soils are used as mixing and control substrate. In the latter case, variations in plant growth can result from either soil contaminants or differences in soil properties like nutrients and texture. Therefore, results from soil testing can less easily be interpreted than results from testing of chemicals .

Soil quality — Determination of the effects of pollutants on soil flora —

Part 2:
Effects of contaminated soil on the emergence and early growth of higher plants

WARNING — Contaminated soils may contain unknown mixtures of toxic, mutagenic, or otherwise harmful chemicals or infectious micro-organisms. Occupational health risks may arise from dust or evaporated chemicals during handling and incubation. Furthermore, test plants might take up chemicals from the soil and safety measures should also be considered when handling the test plants.

1 Scope

This part of ISO 11269 describes a method to assess the quality of an unknown soil and the soil habitat function by determining the emergence and early growth response of at least two terrestrial plant species compared to reference or standard control soils. It is applicable to soils of unknown quality, e.g. from contaminated sites, amended soils or soils after remediation.

2 Normative references

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

ISO 10381-6, *Soil quality — Sampling — Part 6: Guidance on the collection, handling and storage of soil under aerobic conditions for the assessment of microbiological processes, biomass and diversity in the laboratory*

ISO 10390, *Soil quality — Determination of pH*

ISO 10694, *Soil quality — Determination of organic and total carbon after dry combustion (elementary analysis)*

ISO 11260, Soil quality — *Determination of effective cation exchange capacity and base saturation level using barium chloride solution*

ISO 11268-1, *Soil quality — Effects of pollutants on earthworms — Part 1: Determination of acute toxicity to Eisenia fetida/Eisenia andrei*

ISO 11268-2, *Soil quality — Effects of pollutants on earthworms — Part 2: Determination of effects on reproduction to Eisenia fetida/Eisenia andrei*

ISO 11277, *Soil quality — Determination of particle size distribution in mineral soil material — Method by sieving and sedimentation*

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

ISO 22030, *Soil quality — Biological methods — Chronic toxicity in higher plants*

3 Terms and definitions

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