

STN	Kvalita pôdy Vplyvy znečistenia na juvenilné štádiá slimáka záhradného (Helicidae) Stanovenie vplyvu znečistenia pôdy na rast (ISO 15952: 2018)	STN EN ISO 15952 46 5226
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Soil quality - Effects of pollutants on juvenile land snails (Helicidae) - Determination of the effects on growth by soil contamination (ISO 15952:2018)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

**Soil quality - Effects of pollutants on juvenile land snails
(Helicidae) - Determination of the effects on growth by soil
contamination (ISO 15952:2018)**

Qualité du sol - Effets des polluants vis-à-vis des
escargots juvéniles (Helicidae) - Détermination des
effets sur la croissance par contamination du sol (ISO
15952:2018)

Bodenbeschaffenheit - Wirkungen von Schadstoffen
auf Jungtiere von Landschnecken - Bestimmung der
Wirkungen auf das Wachstum durch
Bodenverunreinigung (ISO 15952:2018)

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

EN ISO 15952:2018 (E)

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European foreword

This document (EN ISO 15952:2018) has been prepared by Technical Committee ISO/TC 190 "Soil quality" in collaboration with Technical Committee CEN/TC 444 "Test methods for environmental characterization of solid matrices" 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of an identical text or by endorsement, at the latest by January 2019, and conflicting national standards shall be withdrawn at the latest by January 2019.

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Endorsement notice

The text of ISO 15952:2018 has been approved by CEN as EN ISO 15952:2018 without any modification.

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Soil quality — Effects of pollutants on juvenile land snails (Helicidae) — Determination of the effects on growth by soil contamination

*Qualité du sol — Effets des polluants vis-à-vis des escargots juvéniles
(Helicidae) — Détermination des effets sur la croissance par
contamination du sol*



Reference number
ISO 15952:2018(E)

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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
Website: www.iso.org

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ISO 15952:2018(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.

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).

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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.

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 4, *Biological characterization*.

This second edition cancels and replaces the first edition (ISO 15952:2006), which has been technically revised.

Introduction

Because of the limited amount of data available concerning toxicity of contaminants on soil organisms, the ecotoxicity of soils and waste are cause for serious concern at both national and international levels. Currently available tests use soil-fauna organisms restricted to annelid (earthworms and *Enchytraeidae*) and arthropod phyla (insects: Collembola and Coleoptera). Among the latter, two standards assess acute toxicity [earthworms (ISO 11268-1) and coleoptera larvae^[6] and three other standards address sublethal effects of soil contaminants on reproduction (earthworms^[3], Collembola^[2], *Enchytraeidae*^[4]). In the biological cycles of organisms, it appears that growth is, like reproduction, a fundamental ecophysiological parameter to be taken into consideration for the sustainability of species and ecosystems^[38].

Snails are relevant ecological indicators for assessing the quality of soils (See References ^[16]^[18] to ^[20]^[32]^[33]^[40] to ^[42]), as they are characteristic of the soil surface layer (saprophagous and phytophagous) of which a large part of the biological cycle takes place in the soil (egg-laying, hatching, initial stages of development, hibernation, etc.)^[7]^[18]^[29]. During the other phases of their cycle, they eat soil and are in contact with the soil via their moist pedal sole (foot) covered with mucus and participate in the permanent exchanges with the soil (water, mineral salts, excrement and finally shell and organic matter when they die)^[7]^[18]^[31]. In addition, they constitute an important link between plants, fauna and soil microorganisms. They correspond fully to the criteria for a good biological indicator: easy to sample and identify, they are widely distributed; they accumulate contaminants (See References^[9],^[11] to ^[15],^[17]^[18]^[22]^[24]^[29]^[30],^[33] to ^[48]); their ecological and physiological characteristics are well-known^[7]^[10]^[32]; and they are now easy to breed under controlled conditions^[22]^[26]^[32]. Their susceptibility to common contaminants of their environment has been demonstrated (See References ^[11] to ^[16],^[19] to ^[28],^[30],^[33] to ^[38],^[37] to ^[48]).

This International Standard describes a method for determining the effects on survival and growth of young snails of substances, preparations (i.e. a mixture or solution composed of two or more substances), soils or waste materials added to an artificial or a natural soil. The described method is thus applicable to test contaminated soils or to compare different uncontaminated soils. The recommended species is *Helix aspersa aspersa* Müller (also commonly called: common garden snail, brown garden snail, garden snail, land snail, “Petit-Gris”; synonyms: *Cantareus aspersus*, *Cornu aspersum*^[56]). Among land snails (stylommatophoran pulmonate gastropod molluscs of the *Helicidae* family), *Helix aspersa aspersa* Müller is the most ubiquitous. This palearctic species can be acclimated to regions with different types of climate: Mediterranean, oceanic temperate, midcontinental temperate and even tropical. *Helix aspersa aspersa* Müller is of European origin and has been introduced into all parts of the world. They are now on all continents except Antarctica^[10].

Indeed, in their natural environment, snails integrate the contaminants by contact (with various substrates such as soil, soil leachates, plant litter), by ingestion (of plants and soil), as well as through the respiratory tract^[7]^[29]. So, for specific testing purposes (evaluation of pesticide toxicity, for example), another test design, which is focussed on exposure via food uptake, is optionally available ([Annex F](#) and Reference ^[6]).

Soil quality — Effects of pollutants on juvenile land snails (*Helicidae*) — Determination of the effects on growth by soil contamination

1 Scope

This document specifies a semi-static method for determining the effects of contaminants on growth and survival of young snails, usually *Helix aspersa aspersa* Müller. The animals are exposed via the cutaneous and digestive route using a test substrate (artificial or natural soil according to the objective of the study) to which defined amounts of the following are added:

- substances, mixtures or preparations;
- soils (contaminated or of unknown quality) or waste materials.

This test takes into account the possible changes in the test substance, preparation, soil or waste material because the test mixtures are prepared and renewed every week during the 28-day test period.

A static method may be implemented in addition to the semi-static method (optional). This method is described in [Annex A](#).

This method does not apply to substances for which the air/soil partition coefficient is greater than one, or to substances with vapour pressure exceeding 300 Pa, at 25 °C.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 10390, *Soil quality — Determination of pH*

ISO 18400-206, *Soil quality — Sampling — Part 206: Guidance on the collection, handling and storage of soil for the assessment of biological functional and structural endpoints in the laboratory*

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

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

ISO 11269-2:2012, *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 11274, *Soil quality — Determination of the water-retention characteristic — Laboratory methods*

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

EN 14735, *Characterization of waste — Preparation of waste samples for ecotoxicity tests*

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