
**Soil quality — Guidance on the
ecotoxicological characterization of soils
and soil materials**

*Qualité du sol — Lignes directrices relatives à la caractérisation
écotoxicologique des sols et des matériaux du sol*



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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Terms and definitions	1
2.1 Types of soil and other soil materials	1
2.2 Terms relating to soil characteristics	2
2.3 Land and sites	2
3 Field of application	3
3.1 Soils and areas of soil use where ecotoxicological tests should be considered:	3
3.2 Soils and areas of soil use where ecotoxicological tests are not necessary (provided groundwater contamination can be excluded):	3
4 Selection of tests according to use/re-use of soils and soil materials and soil functions	3
4.1 Usefulness of ecotoxicity tests	3
4.2 General criteria for selection of tests	4
4.3 Considerations for the examination of soil functions	4
5 Sampling, transport, storage and sample preparation	7
6 Limitations of proposed biotests for soils/soil materials	7
Annex A (informative) Standardized forms of recommended test systems	8
Bibliography	31

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.

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 15799 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Soil and site assessment*.

Introduction

The majority of existing ecotoxicological test methods (biotests) being internationally harmonized were developed to describe the ecotoxic potential of a test substance when added to a soil or soil material. These methods can be used, with some modification, for the ecotoxicological characterization of soils and soil materials with respect to their function and depending on the intended use. However, in such cases, users of the methods need to be aware that the validation of the methods is not complete.

For substances with properties resulting in toxic effects, biotests are a complement to conventional chemical analysis. Results from chemical analysis can be used for ecotoxicological assessments based on information on the substances identified, including properties of the chemicals, e.g. their bioaccumulation potential. This information is often scarce (if it exists at all) and does not include possible interactions (synergy/antagonism) between chemicals and the complex soil matrix. Furthermore, an exhaustive identification and quantification of substances is impractical. Therefore, ecotoxicological testing of soils can be used for investigating the potential toxicity of complex chemical mixtures. The extrapolation from laboratory tests to field conditions requires adequate consideration of important environmental factors within the test conditions and the selection of suitable ecotoxicological endpoints.

This International Standard is one of a series providing guidance on soils and soil materials in relation to certain functions and uses, including wildlife conservation, and ought to be read in conjunction with those other standards.

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Soil quality — Guidance on the ecotoxicological characterization of soils and soil materials

1 Scope

This International Standard provides guidance on the selection of experimental methods for the assessment of the ecotoxic potential of soils and soil materials (e.g. excavated and remediated soils, refills, embankments) with respect to their intended use and possible adverse effects on aquatic and soil-dwelling organisms, and habitat maintenance and the retention function of the soil.

It does not cover tests for bioaccumulation. Genotoxicity tests using eukaryotic organisms in soils are not yet available. It is not applicable to the ecological assessment of uncontaminated soils with a view to natural, agricultural or horticultural use, such soils being of possible interest where they can serve as a reference for the assessment of soils from contaminated sites. Nor is the interpretation of the results gained by application of the proposed methods within its scope.

2 Terms and definitions

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

2.1 Types of soil and other soil materials

2.1.1

soil

upper layer of the Earth's crust composed of mineral particles, organic matter, water, air and organisms

[ISO 11074-1:1996, definition 5.4]

2.1.2

soil material

excavated soil, dredged materials, manufactured soils, treated soils and fill materials

[ISO 15176:2002, definition 3.1.4]

2.1.3

excavated soil

any natural material excavated from the ground, including top soil, sub soil, altered parent rock and parent rock itself

NOTE Excavated soil typically arises during construction works.

[ISO 15176:2002, definition 3.1.5]

2.1.4

standard soil

field-collected soil whose main properties (e.g. pH, texture, organic matter content) are within a known range

EXAMPLE Eurosoils^[34].