
**Soil quality — Characterization
of contaminated soil related to
groundwater protection**

*Qualité du sol — Caractérisation des sols pollués en relation avec la
protection des eaux souterraines*

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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.

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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Impact assessment*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This second edition cancels and replaces the first edition (ISO 15175:2004), which has been technically revised.

The main change concerns the focus on contaminated land management. This second edition suggests a tiered approach from simple to complex assessment in order to evaluate the impact of soil contamination of groundwater.

Soil quality — Characterization of contaminated soil related to groundwater protection

1 Scope

This document provides guidance on the principles behind, and main methods for, the evaluation of sites, soils and soil materials in relation to their role as a source of contamination of groundwater and their function in retaining, releasing and transforming contaminants. It is focused on contaminated land management identifying and listing relevant monitoring strategies, methods for sampling, soil processes and analytical methods.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

aquifer

geological water-bearing formation (bed or stratum) of permeable rock, or unconsolidated material (e.g. sand and gravels) capable of yielding significant quantities of water

[SOURCE: ISO 5667-11:2009, 3.5]

3.2

contaminant

substance or agent present in the *soil* (3.10) as a result of human activity

Note 1 to entry: See *pollutant* (3.7).

Note 2 to entry: There is no assumption in this definition that harm results from the presence of the contaminant.

[SOURCE: ISO 11074:2015, 3.4.6, modified — a new Note 1 to entry has been added and the subsequent note has been renumbered.]

3.3

dissolved organic carbon

DOC

concentration of organic carbon remaining in solution after filtration and/or centrifugation under defined conditions

Note 1 to entry: Dissolved organic carbon is expressed in mg/l, g/m³.

3.4

groundwater

water in the saturated zone of an underground geological formation or artificial deposit such as made ground, e.g. fill material

[SOURCE: ISO 5667-11:2009, 3.9, modified — “and/or unsaturated zone” has been removed.]

3.5

water table

upper boundary surface of the *groundwater* (3.4)

[SOURCE: ISO 11074:2015, 3.2.4]

3.6

percolating water

infiltrating water that moves downward in the pore space due to gravity

[SOURCE: ISO 11074:2015, 3.2.5]

3.7

pollutant

substance or agent present in the *soil* (3.10) [or *groundwater* (3.4)] which, due to its properties, amount or concentration causes adverse impacts on *soil functions* (3.11) or soil use

[SOURCE: ISO 11074:2015, 3.4.18, modified — “or soil use” has been added.]

3.8

pore water

water in the pores or cavities within a body of rock or *soil* (3.10)

[SOURCE: ISO 5667-11:2009, 3.18, modified — “water that fills the pores” has been replaced by “water in the pores”.]

3.9

risk assessment

process of risk analysis and evaluation of the damaging effects on humans and the environment, with respect to the nature, extent, and probability of occurrence of these effects

[SOURCE: ISO 11074:2015, 5.2.26, modified — “effects on man” has been replaced by “effects on humans”.]

3.10

soil

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

Note 1 to entry: In a broader civil engineering sense, soil includes topsoil and sub-soil; deposits such as clays, silts, sands, gravels, cobbles, boulders, and organic matter and deposits such as peat, materials of human origin such as wastes, ground gas and moisture, and living organisms.

[SOURCE: ISO 11074:2015, 2.1.11, modified — “transformed by weathering and physical/chemical and biological processes” has been removed.]

3.11

soil function

description of the significance of *soils* (3.10) to man and the environment

EXAMPLE Control of substance and energy cycles as compartment of ecosystems, basis for the life of plants, animals, and man, basis for the stability of buildings and roads, basis for the yield of agriculture, horticulture, and forestry, carrier of genetic reservoir, document of natural history, archaeological and paleoecological document.

[SOURCE: ISO 11074:2015, 3.3.31]