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## Soil quality — Vocabulary

*Qualité du sol — Vocabulaire*

iTeh Standards

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FDIS stage

ISO 11074

<https://standards.itih.ai/catalog/standards/iso/b44e4187-917b-45b1-887b-00f0bea87678/iso-11074>

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ISO 11074

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## Foreword

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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 document 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](http://www.iso.org/directives) [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 444, *Environmental characterization of solid matrices*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 11074:2015), which has been technically revised. It also incorporates the Amendment ISO 11074:2015/Amd 1:2020.

The main changes are as follows:

- ~~terminological entries~~ terminological entries have been reorganised with all the terms and definitions placed in ~~Clause 3~~ [Clause 3](#) in alphabetical order;
- ~~for some terms there are that have~~ ~~different definitions~~; depending on the context. ~~The context of these terms is presented directly after~~ ~~have been grouped~~, and the ~~term itself~~ domain field has been added in ~~angle brackets to differentiate them~~.

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](http://www.iso.org/members.html); [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document defines soil quality terms. The previous editions (ISO 11074:2015 and ISO 11074/Amd.1:2020) presented terms and definitions in separate clauses to differentiate the terms about e.g. sampling, remediation. This became more and more artificial, since soil quality experts with different expertise need to work closely together and there is a greater need for one term list instead of multiple ones, where experts first ~~must need to~~ find out in which clause a specific term is located. In this edition, all the terms are included in ~~Clause 3~~. Clause 3.

For some terms, there are different definitions, depending on the context. These terms are presented after each other, with the differentiating domains between brackets: <context>. Often these are a general domain and a specific domain, resulting in different definitions.

Though the terms apply to all other ISO/TC 190 soil quality standards, this document does not cover all the terms used in ISO/TC 190 soil quality standards.

New and revised standards are published continuously though time. The revision periods of soil quality standards ~~defer differ~~. That means that definitions of the same terms can be different in specific soil quality standard and in this document.

NOTE For general terms relating to quality, see ISO 9000.

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ISO 11074

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# Soil quality — Vocabulary

## 1 Scope

This document defines terms used in the field of soil quality.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

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

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

### 3.1 ~~3.1~~

#### abandoned hazardous site

*hazardous site* ~~(3.201)~~(3.201) left by the owner or other responsible party in unmanaged condition

### 3.2 ~~3.2~~

#### abandoned industrial site

*industrial site* (3.443) left by the owner or other responsible party in unmanaged condition

### 3.3 ~~3.3~~

#### abandoned potentially hazardous site

*site*, *site* (3.443), left by the owner or other responsible party in unmanaged condition, whose history leads to a suspicion that it can be hazardous

### 3.4 ~~3.4~~

#### abandoned waste disposal site

*waste disposal site* (3.443) left by the owner or other responsible party in unmanaged condition

### 3.5 ~~3.5~~

#### abiotic decomposition

*decomposition* ~~(3.113)~~(3.113) by physical and/or chemical processes ~~{(e.g. photolysis, hydrolysis-(3.211), (3.211), oxidation-(3.305), (3.305), and reduction-(3.373))}~~ (3.373)

### 3.6 ~~3.6~~

#### abiotic degradation

*degradation* ~~(3.116)~~(3.116) by physical and/or chemical processes

### 3.7 ~~3.7~~

#### above-ground sampling

process of taking *samples* ~~(3.398)~~(3.398) from material that has been deposited on the ground surface

EXAMPLE Samples are taken from a *stockpile* ~~(3.496)~~[(3.496) (including *bulk volumes*-(3.64) (3.64) of excavated soils-(3.154)], (3.154)], deposit of waste or embankment-[(15) (see ISO 18400-104:2018)].

**3.8 ~~3.8~~**

**accumulation**

increase of the *concentration* ~~(3.86)~~(3.86) of a substance in soil due to the fact that the *substance input* ~~(3.508)~~(3.508) is larger than the *substance output* ~~(3.509)~~(3.509)

Note 1 to entry: Substance output includes material which is degraded ~~substances~~.

**3.9 ~~3.9~~**

**active protective measure**

process designed, for example, to control *groundwater* ~~(3.191)~~(3.191) or *gas migrations* ~~(3.178)~~migration (3.178)

EXAMPLE Pumped water extraction or gas extraction system.

**3.10 ~~3.10~~**

**active soil ~~gas~~ sampling**

*sampling* ~~(3.410)~~(3.410) by extracting a certain volume of *soil gas* ~~(3.454)~~(3.454)

**3.11 ~~3.11~~**

**actual increment size**

amount of material that is present in an *increment* ~~(3.218)~~(3.218)

**3.12 ~~3.12~~**

**actual sample size**

amount of material that is present in the *sample* ~~(3.398)~~(3.398)

**3.13 ~~3.13~~**

**aerobic**

descriptive of a condition with molecular oxygen available

**3.14 ~~3.14~~**

**aerobic biological treatment**

*biological treatment* ~~(3.46)~~(3.46) in the presence of oxygen ISO 11074  
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**3.15 ~~3.15~~**

**aftercare management**

measures applied on completion of remedial works or as an integral part of a *containment* ~~(3.90)~~(3.90) strategy to ensure continued *effectiveness* ~~(3.142)~~(3.142) over the long term

**3.16 ~~3.16~~**

**aggressive soil conditions**

soil conditions potentially damaging to buildings and construction materials

**3.17 ~~3.17~~**

**air-sparging**

introduction of air under pressure into the *groundwater* ~~(3.191)~~(3.191)

**3.18 ~~3.18~~**

**aliphatic hydrocarbon**

acyclic or cyclic, saturated or unsaturated carbon compound, excluding aromatic compounds ~~[6]~~

**3.19 ~~3.19~~**

**aliquot**

known amount of a *homogeneous* ~~(3.204)~~(3.204) material, assumed to be taken with negligible *sampling error* ~~(3.413)~~(3.413)



Note 1 to entry: The term is usually applied to fluids.

**3.20 ~~3.20~~**

**ammonification**

microbial *degradation* ~~(3.116)~~(3.116) of organic nitrogen to ammonia

**3.21 ~~3.21~~**

**amplicon**

DNA or RNA fragment obtained by polymerase chain reaction (PCR) ~~product obtained by PCR(3.330)~~ from a template

~~Note 1 to entry: DNA fragment or RNA fragment amplified by PCR.~~

**3.22 ~~3.22~~**

**anaerobic**

descriptive of a condition in which molecular oxygen is not available

**3.23 ~~3.23~~**

**anaerobic biological treatment**

*biological treatment* ~~(3.46)~~(3.46) in the absence of gaseous or soluble oxygen

**3.24 ~~3.24~~**

**anaerobic transformation**

~~reactions~~reaction occurring under exclusion of oxygen ~~[(reducing-(3.372)-conditions)]~~(3.372) condition

Note 1 to entry: These generally occur when the redox potential (Eh) is less than 200 mV.

**3.25 ~~3.25~~**

**analytical and testing strategy**

plan comprising the *samples* ~~(3.398)~~(3.398) to be analysed or tested, the parameters to be measured, sample preparation methods, and the analytical or testing methods to be employed

Note 1 to entry: There should be associated quality assurance methods. ~~7b-45b1-887b-00f0bea87678/iso-11074~~

**3.26 ~~3.26~~**

**analytical sample**

portion of material, resulting from the original *sample* ~~(3.398)~~(3.398) or *composite sample* ~~(3.83)~~(3.84) ~~(3.83)~~(3.84) by means of an appropriate method of *sample pretreatment* ~~(3.402)~~(3.402) and having the size (volume/mass) necessary for the desired testing or analysis

**3.27 ~~3.27~~**

**anisotropy**

property of a soil or other volume of material to have different spatial variation structures depending on direction and distance

Note 1 to entry: Usually illustrated in a *variogram* ~~(3.566)~~(3.566).

**3.28 ~~3.28~~**

**anthropogenic change**

influence on soil properties caused by human activities

**3.29 ~~3.29~~**

**anthropogenic concentration**

*concentration* ~~(3.86)~~(3.86) of a substance in a soil resulting from anthropogenic origin ~~[18]~~

**3.30**

Note 1 to entry: See ISO 19204:2017.

**3.30**

**anthropogenic ground**

deposits which have accumulated through human activity ~~{15}~~

Note 1 to entry: These can consist of natural materials placed/replaced by man (e.g. clay) or man-made materials (e.g. refuse).

**3.31**

Note 2 to entry: See ISO 18400-104:2018.

**3.31**

**aromatic hydrocarbon**

hydrocarbon ~~{3.210}~~ {3.210} of which the molecular structure incorporates one or more planar sets of six carbon atoms that are connected by delocalized electrons, numbering the same as if they consisted of alternating single and double covalent bonds

**3.303.32** **3.32**

**assessment criteria**

criteria set up to help decide if a *site* ~~{3.443}~~ {3.443} requires further investigation or other action ~~{(e.g. remediation-}{3.380})}~~ {3.380}

Note 1 to entry: The assessment criteria aid in interpreting the results of a quantitative *risk* ~~{3.393}~~ {3.393} or other assessment.

Note 2 to entry: For *risk assessments* ~~{3.395}~~ {3.395}, assessment criteria are often *threshold* ~~{3.534}~~ {3.534} values for *doses* ~~{3.131}~~ {3.131} or *media concentrations* ~~{3.86}~~ {3.86}, such as tolerable daily intake, tolerable air, water, and soil concentrations set by international, national, or local authorities.

**3.313.33** **3.33**

**available water capacity**

*soil water* ~~{3.479}~~ {3.479} content usable by plants based on the effective root penetration depth

Note 1 to entry: The usable *field capacity* ~~{3.166}~~ {3.166} in the effective root zone is expressed in millimetres of water column.

Note 2 to entry: The available water capacity (AWC) is generally taken to be the water content ~~{3.575}~~ between field capacity (FC) and the permanent *wilting point* ~~{3.572}~~ {3.572} (PWP) or 10 kPa to 1 500 kPa. ~~See readily available water capacity.~~

**3.323.34** **3.34**

**avoidance behaviour**

tendency (of an organism) to avoid the test soil while preferring the *control soil* ~~{3.95}~~ {3.95}

**3.333.35** **3.35**

**background concentration**

*concentration* ~~{3.86}~~ {3.86} of an element or a substance *characteristic* ~~{3.70}~~ {3.70} of a soil type in an area or region arising from both natural sources and anthropogenic diffuse sources such as atmospheric deposition

**3.343.36** **3.36**

**background value**

*statistical characteristics* ~~{3.495}~~ {3.495} of the total (natural pedo-geochemical and anthropogenic) content of substances in soil

~~3.353.37~~ ~~3.37~~**basal respiration**

microbial soil respiration without addition of substrate

~~3.363.38~~ ~~3.38~~**basal respiration rate**

$R_B$

constant mass of CO<sub>2</sub> released or mass of O<sub>2</sub> consumed per unit mass of soil per unit time without substrate addition

~~3.373.39~~ ~~3.39~~**bedrock**

in situ naturally consolidated rock either underlying drift deposits such as glacial till or exposed by past or current erosion processes

~~3.383.40~~ ~~3.40~~**bioaccessibility**

*fraction* ~~(3.172)~~(3.172) of a substance in soil or *soil material* ~~(3.459)~~ (3.459) that is liberated in (human) gastrointestinal juices and thus available for absorption

~~3.393.41~~ ~~3.41~~**bioavailability**

<general> degree to which chemicals present in the soil can be absorbed or metabolised by a human or ecological *receptor* ~~(3.370)~~ (3.370) or are available for interaction with biological systems

~~3.403.42~~ ~~3.42~~**bioavailability**

<human health> *fraction* ~~(3.172)~~(3.172) of a substance present in ingested soil that reaches the systemic circulation (blood stream)

~~3.413.43~~ ~~3.43~~**bioconcentration factor**

BCF

ratio of the *concentration* ~~(3.86)~~(3.86) of a substance in an organism to that in the soil

~~3.423.44~~ ~~3.44~~**biodegradation**

molecular *degradation* ~~(3.116)~~(3.116) of an organic substance resulting from the complex actions of living organisms

~~3.433.45~~ ~~3.45~~**biodiversity**

<fauna>

variability among living organisms on the earth, including the variability within and between species, and within and between ecosystems

~~the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.~~

Note 1 to entry: This is also often used asto refer to the number and variety of organisms found within a specified geographic region.

**3.46**

[SOURCE: ISO 14050:2020, 3.8.22, modified —Note 1 to entry has been added.]

**3.46****biological treatment**

methods using the natural activities of plants or ~~micro-organisms, microorganisms~~ (3.266), such as bacteria and fungi, to transform, destroy, fix, or immobilise ~~contaminants~~ (3.91) (3.91)

**3.443.47** ~~3.47~~**biomass**

<general> total mass of living organisms or parts of them

Note 1 to entry: Biomass is expressed as fresh or dry mass of test organism or fresh or dry mass per test unit.

**3.453.48** ~~3.48~~**biomass**

<fauna> total mass of test organisms or parts of them expressed as dry mass or fresh mass of test organism or dry mass or fresh mass per test unit

**3.463.49** ~~3.49~~**biomass**

<plants> total mass of shoots, flowers and seed pods

Note 1 to entry: Biomass is expressed as dry mass per plant or, if needed, as dry mass per pot. During the test period, some of the test plants can reach different ~~growth~~ (3.194) (3.194) stages and their water content (3.575) can differ when the plants are harvested. Thus, the dry mass better represents the biomass produced during the growth period.

**3.473.50** ~~3.50~~**bioreactor**

equipment in which biotreatment is applied to a solid, liquid, or slurry

**3.483.51** ~~3.51~~**bioremediation**

use of *biological treatment* (3.46) (3.46) methods to decontaminate soil or *groundwater* (3.191) (3.191)

**3.493.52** ~~3.52~~**biosolid**

organic product applied to soil ~~including, e.g. sewage~~

EXAMPLE Sewage sludge, compost, manure, ~~and~~ industrial products.

Note 1 to entry: Without giving a specific context, biosolid is often regarded as a component of sewage sludge.

**3.503.53** ~~3.53~~**biotreatment bed****treatment bed**

above-ground bed of soil designed to enhance *biodegradation* (3.44) (3.44) processes, usually incorporating means of collecting leachate and often means of maintaining oxygen (in aerobic processes) and nutrient levels

Note 1 to entry: It can also include means of capturing released volatiles or means of maintaining *anaerobic* (3.22) (3.22) conditions.

**3.513.54** ~~3.54~~**bioventing**

in situ process in which vapour extraction ~~/ or~~ air infiltration rates, or both, are adjusted to optimize *biodegradation* (3.44) (3.44) reactions

~~3.523.55~~ 3.55**boiling point**

BP

point at which the vapour pressure of a liquid equals the external pressure acting on the surface of liquid

Note 1 to entry: It is expressed in degrees Celsius.

~~3.533.56~~ 3.56**boring****borehole****bore**hole of any predetermined diameter and length formed in any soil, geological formation, or man-made material by *drilling* ~~(3.134)~~ (3.134)~~3.543.57~~ 3.57**bottom barrier system**in-ground (largely) horizontal barrier used to isolate ~~/or~~ contain a site ~~(3.443)~~ (3.443), or both~~3.553.58~~ 3.58**bound residues****non-extractable residues**chemical species in plants and soils, ~~originating from, for example, organic molecules~~ that ~~are not~~ cannot be extracted ~~by methods which do not~~ without significantly ~~change~~ changing the chemical nature of these residuesEXAMPLE Chemical species originating from organic molecules.

Note 1 to entry: These non-extractable residues are considered to exclude fragments recycled through metabolic pathways leading to natural products.

~~3.563.59~~ 3.59**break layer**stratum of high permeability granular material within a *cover system* ~~(3.102)~~ (3.102)<https://standards.iteh.ai/catalog/standards/iso/b44e4187-9176-45b1-887b-00f0bea87678/iso-11074>Note 1 to entry: Its purpose is to stop upward capillary movement of soluble *contaminants* ~~(3.91)~~ (3.91).~~3.573.60~~ 3.60**brownfield**

&lt;general&gt; land affected by former uses

~~3.583.61~~ 3.61**brownfield**

&lt;sustainable remediation&gt;

Site ~~(3.443)~~ site ~~(3.443)~~ which:

- ~~—~~ has been affected by former uses of the site or surrounding land;
- ~~—~~ is derelict or underused;
- ~~—~~ is mainly in fully developed or partly developed urban areas;
- ~~—~~ requires intervention to bring it back to beneficial use; and/or
- ~~—~~ may ~~can~~ have real or perceived *contamination* ~~(3.93)~~ (3.93) problems

**3.593.62** ~~3.62~~**bulk density**

ratio of the mass of a quantity of material (or one phase) and the total volume occupied by this material (including other phases)

Note 1 to entry: This is typically a volumetric mass, but it is commonly named as “density”. The numerical values are identical or divided by the volumetric mass of water ( $1 \text{ t} \cdot \text{m}^{-3}$ ) at 4 °C.

**3.603.63** ~~3.63~~**bulk sample**

sample ~~(3.398)~~(3.398) resulting from the planned aggregation or the combination of sample units

~~[SOURCE: IUPAC Compendium of Chemical Terminology, 3rd ed. International Union of Pure and Applied Chemistry; 2006. Online version 3.0.1, 2019. <https://doi.org/10.1351/goldbook.B00756>]~~

**3.64**

~~[SOURCE: Reference [27]]~~

**3.64****bulk volume**

volume, including the solids and pores, of an arbitrary soil mass

**3.613.65** ~~3.65~~**capillary water**

water held on soil particles due to unbalanced inter-molecular attraction at the liquid boundary

EXAMPLE The rise or depression of liquids in narrow tubes, the formation of films, drops, bubbles, etc.

**3.623.66** ~~3.66~~**carcinogen**

substance that causes the development of malignant cells in animals or humans

**3.633.67** ~~3.67~~**certified reference material****CRM**

reference material ~~(3.374)~~(3.374), one or more of whose property values are certified by a technically valid procedure accompanied by a certificate or any document allowing the identification of the origin of the certificate

**3.643.68** ~~3.68~~**chain-of-custody procedure**

procedure to ensure sample ~~(3.398)~~(3.398) integrity (e.g. when transferred between the field and laboratory and within a laboratory) and to ensure that the sample will provide legally and technically defensible data

Note 1 to entry: See ISO 5667-3:2024, 3.2 ~~wherefor~~ a definition of integrity ~~is given~~.

**3.653.69** ~~3.69~~**channel sample**

sample ~~(3.398)~~(3.398) obtained by removal of material in a channel-like shape from the soil using suitable equipment

**3.663.70** ~~3.70~~**characteristic**

property or attribute of a material that is measured, compared, or observed