

ICS 13.080.01

CCS B 10



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 36199-2018

Soil quality -- Guidance on the design of sampling programmes

Issued on: May 14, 2018

Implemented on: December 1, 2018

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method equivalent to ISO 10381-1:2002 "Soil quality sampling Part 1. Soil sampling program design guide".

For ease of use, this standard makes the following editorial changes.

--- Change the standard name to the Soil Quality Soil Sampling Program Design Guide.

This standard was proposed by the Ministry of Agriculture and Rural Affairs of the People's Republic

This standard is under the jurisdiction of the National Soil Quality Standardization Technical

Committee (SAC/TC404).

This standard was drafted. Nanjing Institute of Soil Science, Chinese Academy of Sciences, Zhejiang University, Nanjing Agricultural University, Jiangsu Province Quality and Standardization Research

Research Institute.

1 Scope

This standard specifies general rules for the design of soil sampling procedures, which are suitable for describing and controlling soil quality and for determining soil and related samples.

The source of pollutants and its impact sampling, the key points are as follows.

- Determine the steps required to collect test points or statistically significant soil in situ test instrument installation points;
- Determine the size of the sample size and whether the program needs to mix samples;
- Sampling method;
- Identify methods for containment, storage and transportation of damaged or contaminated soil samples.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

ISO 10381-3 Soil quality sampling - Part 3. Safety guide (Soilquality-Sampling-Part 3. Guidance

Onsafety)

ISO 10381-4 Soil quality sampling - Part 4. Guidelines for the investigation of natural, near-natural and cultivated soils (Soil quality-

Sampling-Part 4.

Guidanceontheprocedureforinvestigationofnatural,near-naturalandcultivated

Sites)

ISO 10381-5 Soil quality sampling - Part 5. Guidelines for survey methods for soil pollution in urban and industrial sites (Soil

quality-Sampling-Part 5.Guidanceoninvestigationofsoilcontaminationofurbanandindustrial Sites)

ISO 10381-6 Soil quality sampling - Part 6. Laboratory determination of microbial processes, biomass and diversity

Oxygen collection, processing and storage guidelines (Soilquality-Sampling-Part 6. Guidance on thecollection, handlingand

Storageofsoilfortheassessmentofaerobicmicrobialprocessesinthelaboratory)

ISO 11074-2 Soil quality vocabulary Part 2. Terms and definitions for sample collection (SoilQuality-Vocabula-

ry-Part 2.Termsanddefinitionsrelatingtosampling)

3 Terms and definitions

The terms and definitions defined in ISO 11074-2 apply to this document.

4.1 General

Samples are collected and tested primarily to determine their physical, chemical, biological, and radiological parameters. This chapter outlines the design of soil and phases.

Aspects of the sampling process that require material considerations. More information is given in the following sections.

When describing a certain volume of soil, it is generally impossible to test the whole soil, so sampling is required. Sampled

It is advisable to have the highest possible representation of the whole described and to take precautions to ensure that the soil is available during the sampling and inspection intervals.

Can not change. When collecting multiphase systems, for example, containing water or other liquids, gases, biological substances, radionuclides or other non-self

However, soil solids (such as waste) will face some special problems. In addition, in order to correctly implement related tests, some physical parameters need to be detected.

Undisturbed soil samples are collected.

Before designing any sampling program, it is important to first determine the sampling target. The sampling target mainly includes the following determinants. sampling

Point position and density, sampling time, sampling procedure, sample processing and analysis requirements. The details of the sampling program depend on the need

The soil parameters are average values, distributions, or differences in difference parameters.

At the same time, it is advisable to consider the level of detail and accuracy required, as well as the way in which the results are expressed and submitted, such as the concentration of chemicals, most

Large and minimum values, arithmetic mean, median, etc. In addition, a list of parameters needs to be developed and relevant analysis procedures developed, which can be used to guide

Develop precautions to be taken during soil sampling and subsequent sample processing.

The necessary survey sampling and analysis procedures are often required before determining the final sampling target. On the same or similar locations

Previous data on sampling procedures and other information under local conditions must be considered; at the same time, personal experience in the past is also very valuable.

It is often necessary to invest time and money in designing a correct sampling program to ensure that the required information is obtained quickly and efficiently.

It should be emphasized that the full achievement of the objectives of the soil survey depends mainly on the rationality and implementation of the sampling program design.

The contents to be determined when designing the sampling program are listed in 4.2~4.7, and relevant reference information is given in the corresponding part.

4.2 Determine the target

When determining your goals, consider the following.

- a) delineate the survey area;
- b) determine the objectives of the entire survey;
- c) compiling the measurement parameters;
- d) compile additional information needed to interpret the results;
- e) the content of the sample report;
- f) the determination of the relevant sampling contract;
- g) process management arrangements;
- h) Cost estimate.

4.3 Preliminary information

The following questions may be helpful in the selection of preliminary information.