

CCS B 10



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

GB/T 41224-2021

Soil quality - Digital exchange of soil-related data

Issued on: December 31, 2021

Implemented on: July 1, 2022

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

Table of Contents

foreword

Introduction

1 Scope

2 Normative references

3 Terms and Definitions

foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is equivalent to ISO 28258:2013 "Digital exchange of soil-related data on soil quality".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Soil quality and soil protection are an increasingly important issue in all countries. Whether it is for land development, waste recycling, evaluation

To assess the impact of soil usage on water quality, or to maintain soil function, it is increasingly necessary to understand soils and describe them.

description and analysis. Although many standards have been established to describe and analyze soils, because soil-related research is generally carried out by professional organizations

The research results usually need to be submitted to the business entrusting party or management department, and according to the provisions of the law, the relevant government departments should also

Therefore, it is very necessary to formulate digital exchange standards for soil data.

Many projects involve the description, sampling and analysis of soils, which result in soil data, where sampling and analysis are usually not necessary.

required. Soil properties are estimated in terms of soil-generating layers or soil layers at

specific depths. This vertical sequence constitutes the soil profile.

The amount and level of detail of soil description, sampling and analysis varies widely from project to project. In addition, available metadata, sampling and analysis design and professional terms are also different. Because of this, the exchange of soil data is very difficult.

Due to the wide diversity of soil data itself and its use, data exchange in hard copy (paper) form is now

Less appropriate, especially considering that in some land development or environment-related decisions, soil research is often not the end point in itself, but only as part of the required data. Therefore, soil data needs to be used in conjunction with data from other sources such as environmental, land use or statistical data.

Therefore, it is necessary to use a geographic information system (GIS). The purpose of this document is to provide an

Generic process for recording various soil-related data for data exchange without any prerequisites for information systems.

This document proposes a data format based on Extensible Markup Language (XML). The XML language consists of a set of platform- and software-independent

It consists of information coding rules. The main advantage of using XML is that the language is the standard for data transmission over the Internet. Most existing software tools

Both the program interface and the program interface support processing and querying XML files, and XML can be converted into other data formats according to user purposes or needs for further

processing or displaying, or converting XML files to and from relational databases. In addition, in order to facilitate the exchange of this type of data with other environmental data

This document also uses a specific XML format for geographic information, GML.

This document specifies the method for encoding soil data (metadata, soil description, geography and time, etc.), including relevant specifications and XML codes

code. In addition, to maintain compatibility between revisions of this document, coding guidelines are provided for other information not currently taken into account. this

These basic principles enable data recipients or users to read and/or decode soil-related information in an unambiguous, secure and retrievable manner.

Figure 1 shows the data flow for the soil quality project, which is generic to the many forms

of application to which this document applies.

Figure 1 Common data exchange for soil quality projects

Soil Quality Digital exchange of soil-related data

1 Scope

This document specifies the basic principles of digital exchange of soil-related data, the soil characteristic information model, sub-model description, software focus, verification

The content and requirements of the software (control tool).

This document applies to the exchange of effective, clearly descriptive and specific soil-related data between individuals and organizations through digital systems and facilitates the

Soil data producers, holders or users find and transfer data in an unambiguous manner.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

ISO 11074 Soilquality-Vocabulary

Note. GB/T 18834-2002 Soil Quality Vocabulary (ISO 11074-1.1996, NEQ)
siteinformation)

Note. GB/T 32724-2016 Format for recording soil and field information (ISO 15903.2002, IDT)

Note. GB/T 30171-2013 Special Standard for Geographic Information (ISO 19106.2004, MOD)

Guage(GML)]

Note. GB/T 23708-2009 Geographical Information Geographic Markup Language (GML) (ISO 19136.2007, IDT)

Note. GB/T 32726-2016 Soil Quality Field Soil Description (ISO 25177.2008, IDT)

3 Terms and Definitions

Terms and definitions defined in ISO 11074 and ISO 19109 and the following terms and

definitions apply to this document.

3.1

analysis analysis

The process of testing the composition and condition of samples according to established procedures.

NOTE. Most analyses are performed on ex situ samples, but some analyses can also be performed on in situ materials.

3.2

Analytical result

Qualitative or quantitative properties of the material obtained in the analysis.