SVENSK STANDARD
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Markundersökningar – Digitalt utbyte av mark-data (ISO 28258:2013)

Soil quality – Digital exchange of soil-related data (ISO 28258:2013)

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The European Standard EN ISO 28258:2013 has the status of a Swedish Standard. This document contains the official version of EN ISO 28258:2013.

Denna standard är framtagen av kommittén för Karaktärisering av avfall, mark och slam, SIS/TK 535.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 28258

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ICS 13.080.01

English Version

Soil quality - Digital exchange of soil-related data (ISO 28258:2013)

Qualité du sol - Échange numérique de données relatives au sol (ISO 28258:2013)

Bodenbeschaffenheit - Digitaler Austausch bodenbezogener Daten (ISO 28258:2013)

This European Standard was approved by CEN on 24 August 2013.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 28258:2013) has been prepared by Technical Committee ISO/TC 190 “Soil quality” in collaboration with Technical Committee CEN/TC 345 “Characterization of soils” the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2014, and conflicting national standards shall be withdrawn at the latest by April 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 28258:2013 has been approved by CEN as EN ISO 28258:2013 without any modification.

Introduction

Concerns about the future of soils are increasing. The quality of soils and the needs for soil protection are an issue of ever-increasing importance, in all countries. Whether it be for matters of land development, recycling of waste, for assessing the consequences of the way of use of soils on the quality of water or, more generally, the maintaining of their ability to guarantee the functions expected of them by society, it is becoming more and more necessary to know soils, to describe them and to analyse them. A large number of standards indicate how to carry out these descriptions and analyses. However, soil-related studies are usually conducted by specialized departments and their results have then to be forwarded to the requesting parties or to the administration. Furthermore, as regards the availability of environmental data for the public, the official services are solicited to put them online, including information related to soils.

Soil data are produced during projects which involve the description of soil and — often, but not necessarily — sampling and analysis. Soil properties are estimated for parts of a soil, which can be genetic horizons or depth classes. This vertical sequence composes a soil profile. The intensity of soil description, sampling and analysis varies greatly among projects. In addition, available metadata, sampling and analytical designs and nomenclatures vary as well.

Due to this wide diversity of data and uses, the hardcopy (paper) form is nowadays rarely suitable, particularly when we consider that soil studies do not generally constitute an end in themselves but are only a part of the data required for the taking of land developmental or environmental-related decisions. Thus, soil data need to be crossed with other environmental, land-use or statistical data sources; the use of geographical information systems (GIS) is therefore essential. The purpose of this International Standard is to provide a general procedure to record all kinds of soil-related data in order to exchange them, while being consistent with relevant International Standards, but without any prerequisite for a given information system.

This International Standard proposes an eXtensible Markup Language (XML)-based format. XML consists of a set of rules for encoding information which is platform- and software-independent. A major advantage of using XML is that it is the standard for data transfer over the Internet. Most existing software tools and programming interfaces are designed to process and query XML files, to transform XML

into other data formats for further processing or display, and to transform XML to/from relational databases, whatever the purpose and the needs of the users. Moreover, a specific form of XML called GML is used for geographic information, promoting its exchange and use in combination with other environmental data.

Consequently, this International Standard contains information on how to encode soil data (metadata, soil description as well as geographic and temporal ones), including specifications and XML codes. In addition, and to make this International Standard “future-proof” between revisions, guidelines are provided for encoding of additional information not yet considered. These basic principles allow also the recipient system/user to read and/or decode information provided in a clear, safe and retrievable manner.

Figure 1 shows the fluxes of soil data, generic to many kinds of applications that can be organized using this International Standard.

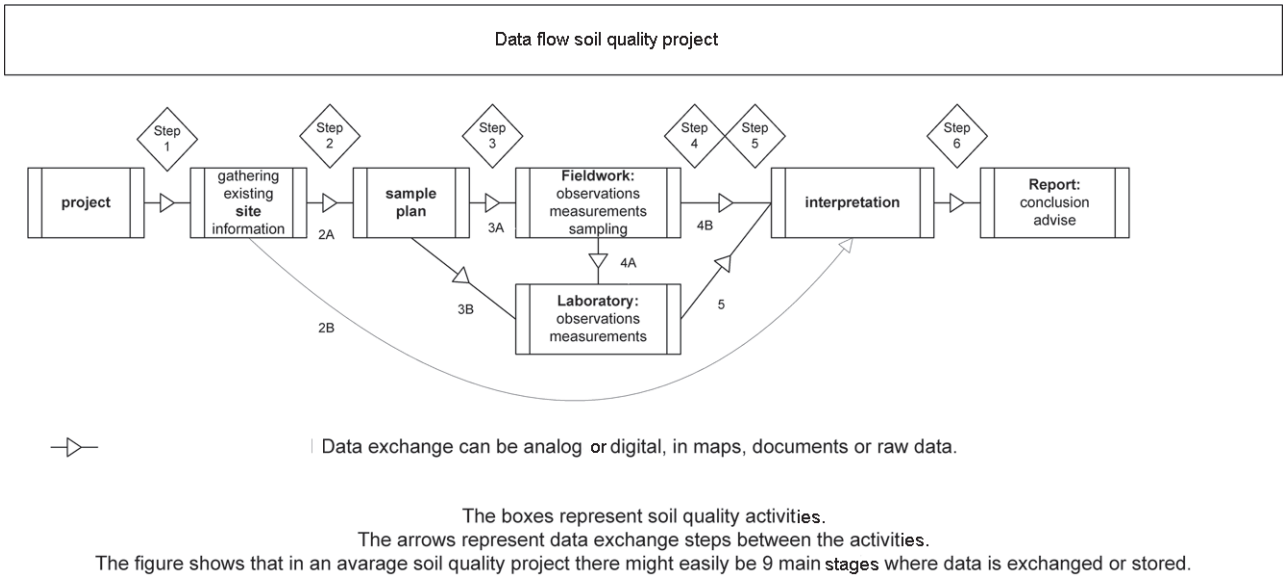

Figure 1 — Common data exchanges in soil quality

Soil quality — Digital exchange of soil-related data

1 Scope

This International Standard describes how to digitally exchange soil-related data. It aims to facilitate the exchange of valid, clearly described and specified soil-related data between individuals and organizations via digital systems, and enables any soil data producer, holder or user to find and transfer data in an unambiguous way.

This International Standard contains definitions of features, several parameter specifications and encoding rules that allow consistent and retrievable data exchange. It also allows the explicit geo-referencing of soil data by building on other International Standards, thus facilitating the use of soil data within geographical information systems (GIS). Because soil data are of various origins and are obtained according to a huge variety of description and classification systems, this International Standard provides no attribute catalogue, but a flexible approach to the unified encoding of soil data by implementing the provisions of ISO 19156 observations and measurements (OM) for use in soil science.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11074, *Soil quality — Vocabulary*

ISO 15903, *Soil quality — Format for recording soil and site information*

ISO 19106:2004, *Geographic information — Profiles*

ISO 19109, *Geographic information — Rules for application schema*

ISO 19118, *Geographic information — Encoding*

ISO 19136, *Geographic information — Geography Markup Language (GML)*

ISO 19156:2011, *Geographic information — Observations and measurements*

ISO 25177:2008, *Soil quality — Field soil description*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11074 and in ISO 19109, and the following, apply.

3.1
analysis
process by which a sample is tested for composition or state according to a described procedure

Note 1 to entry: Most analyses are carried out on dislocated samples, but analyses can also be carried out on material *in situ*.

3.2
analytical result
qualitative or quantitative characteristic of a material obtained by an analysis