



BSI Standards Publication

Geotechnical investigation and testing – Identification and classification of soil

Part 1: Identification and description (ISO 14688-1:2017)

National foreword

This British Standard is the UK implementation of EN ISO 14688-1:2018. It is identical to ISO 14688-1:2017. It supersedes BS EN ISO 14688-1:2002+A1:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/526/3, Site investigation and ground testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2018
Published by BSI Standards Limited 2018

ISBN 978 0 580 87598 4

ICS 93.020

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2018.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

English Version

**Geotechnical investigation and testing - Identification
and classification of soil - Part 1: Identification and
description (ISO 14688-1:2017)**

Reconnaissance et essais géotechniques -
Identification et classification des sols - Partie 1:
Identification et description (ISO 14688-1:2017)

Geotechnische Erkundung und Untersuchung -
Benennung, Beschreibung und Klassifizierung
von Boden - Teil 1: Benennung und
Beschreibung (ISO 14688-1:2017)

This European Standard was approved by CEN on 23 November 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

This document (EN ISO 14688-1:2018) has been prepared by Technical Committee ISO/TC 182 “Geotechnics” in collaboration with Technical Committee CEN/TC 341 “Geotechnical Investigation and Testing” the secretariat of which is held by BSI.

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 August 2018, and conflicting national standards shall be withdrawn at the latest by August 2018.

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

This document supersedes EN ISO 14688-1:2002.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 14688-1:2017 has been approved by CEN as EN ISO 14688-1:2018 without any modification.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General	3
5 Identification of soil	4
5.1 Mineral soil	4
5.1.1 General	4
5.1.2 Composite soils	7
5.1.3 Plasticity	8
5.1.4 Organic content in mineral soils	8
5.2 Organic soils	8
5.3 Carbonate soils	9
5.4 Sulfide soils	9
5.5 Volcanic soils	9
5.6 Loess	9
5.7 Glacial soils	9
5.8 Anthropogenic soil	9
5.9 Origin of deposit	10
5.9.1 General	10
5.9.2 Depositional environment	10
5.9.3 Geological unit	10
6 Description of soil	10
6.1 Description of soil properties	10
6.1.1 Particle size distribution	10
6.1.2 Particle shape	10
6.1.3 Particle strength	11
6.1.4 Mineral composition	11
6.1.5 Fines content	11
6.1.6 Consistency	11
6.1.7 Soil colours	12
6.1.8 Organic content	13
6.1.9 Carbonate content	13
6.1.10 Degree of decomposition of peat	13
6.2 Description of different soil types	14
6.2.1 Volcanic soils	14
6.2.2 Loess	14
6.2.3 Glacial soils	14
6.2.4 Anthropogenic soil	15
7 Description of bedding and discontinuities	15
7.1 Bedding	15
7.2 Discontinuities	16
7.3 Interbedding and mixed soils	16
8 Reporting	16
Annex A (informative) Procedures for identification of the primary fraction in mineral soils	18
Bibliography	22

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 182, *Geotechnics*.

This second edition cancels and replaces the first edition (ISO 14688-1:2002), which has been technically revised. It also incorporates the Amendment ISO 14688-1:2002/Amd 1:2013.

A list of all parts in the ISO 14688 series can be found on the ISO website.

Introduction

This document gives details of the procedures to be followed in the identification and description of soils. [Clauses 4](#) and [5](#) provide the rules for soil identification which are used at all stages of ground investigation and geotechnical design. [Clauses 6](#) and [7](#) give details of the procedures to be followed by those actually describing soils in the field or laboratory. This comprises the description of the soil material in all aspects and the description of the soil mass characteristics in terms of the bedding and discontinuities.

The level of detail in a description will depend on the characteristics of the soil, the size and quality of the soil exposure or sample, and the needs of the particular project. The person carrying out the field identification and description should be suitably qualified, skilled and experienced to make a correct and appropriate description and experienced in the geological materials involved in the investigation.

Practice in soil identification and description varies from country to country, in part reflecting significant differences in geological conditions. In addition, the quality of samples available for description vary due to the investigation methods employed, as methods of investigation have been developed in response to the ground conditions present.

Following identification and description, ISO 14688-2 gives the means by which soils can be classified into groups of similar composition and geotechnical properties based on the results of field and laboratory tests with respect to their suitability for geotechnical engineering purposes. Test results provide a means of checking the accuracy of the field or laboratory descriptions.

Geotechnical investigation and testing – Identification and classification of soil —

Part 1: Identification and description (ISO 14688-1:2017)

1 Scope

This document specifies the rules for the identification and description of soils and is intended to be read in conjunction with ISO 14688-2, which outlines the basis of classification of those material characteristics most commonly used for soils for engineering purposes. The relevant characteristics could vary and therefore, for particular projects or materials, more detailed subdivisions of the descriptive and classification terms could be appropriate.

This document specifies procedures for the identification and description of soils based on a flexible system for use by experienced persons, covering both material and mass characteristics by visual and manual techniques. Details are given of the individual characteristics for identifying soils and the descriptive terms in regular use, including those related to the results of hand tests carried out in the field as part of the descriptive process.

This document is applicable to the description of soils for engineering purposes which can be those laid by natural processes, those laid by man or comprise synthetic materials.

NOTE 1 The identification and description of rocks are covered by ISO 14689-1. Identification and description of materials intermediate between soil and rocks are carried out using the procedures in this document, ISO 14688-2 and ISO 14689-1 as appropriate.

NOTE 2 The identification and classification of soil for pedological purposes, as well as in the framework of measurements for soil protection and for remediation of contaminated areas, is covered by ISO 25177.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14688-2, *Geotechnical investigation and testing — Identification and classification of soil — Part 2: Principles for a classification*

ISO 14689-1, *Geotechnical investigation and testing — Identification and classification of rock — Part 1: Identification and description*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14688-2 and the following apply.

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

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