

|            |                                                                                                                                           |                                                    |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| <b>STN</b> | <b>Geotechnický prieskum a skúšky</b><br><b>Pomenovanie a klasifikácia zemín</b><br><b>Časť 1: Pomenovanie a opis (ISO 14688-1: 2017)</b> | <b>STN</b><br><b>EN ISO 14688-1</b><br><br>72 1003 |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|

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

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/18

Obsahuje: EN ISO 14688-1:2018, ISO 14688-1:2017

Oznámením tejto normy sa ruší  
STN EN ISO 14688-1 (72 1003) z mája 2004

**126808**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 14688-1**

February 2018

ICS 13.080.05; 93.020

Supersedes EN ISO 14688-1:2002

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: Rue de la Science 23, B-1040 Brussels**

**EN ISO 14688-1:2018 (E)**

| <b>Contents</b>               | <b>Page</b> |
|-------------------------------|-------------|
| <b>European foreword.....</b> | <b>3</b>    |

## **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.



# INTERNATIONAL STANDARD

**ISO**  
**14688-1**

Second edition  
2017-12

---

---

## **Geotechnical investigation and testing — Identification and classification of soil —**

### **Part 1: Identification and description**

*Reconnaissance et essais géotechniques — Identification et  
classification des sols —*

*Partie 1: Identification et description*



Reference number  
ISO 14688-1:2017(E)

© ISO 2017

**ISO 14688-1:2017(E)****COPYRIGHT PROTECTED DOCUMENT**

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org



# Contents

Page

|                                                                                                     |           |
|-----------------------------------------------------------------------------------------------------|-----------|
| <b>Foreword</b>                                                                                     | <b>iv</b> |
| <b>Introduction</b>                                                                                 | <b>v</b>  |
| <b>1 Scope</b>                                                                                      | <b>1</b>  |
| <b>2 Normative references</b>                                                                       | <b>1</b>  |
| <b>3 Terms and definitions</b>                                                                      | <b>1</b>  |
| <b>4 General</b>                                                                                    | <b>3</b>  |
| <b>5 Identification of soil</b>                                                                     | <b>4</b>  |
| 5.1 Mineral soil                                                                                    | 4         |
| 5.1.1 General                                                                                       | 4         |
| 5.1.2 Composite soils                                                                               | 8         |
| 5.1.3 Plasticity                                                                                    | 9         |
| 5.1.4 Organic content in mineral soils                                                              | 9         |
| 5.2 Organic soils                                                                                   | 9         |
| 5.3 Carbonate soils                                                                                 | 10        |
| 5.4 Sulfide soils                                                                                   | 10        |
| 5.5 Volcanic soils                                                                                  | 10        |
| 5.6 Loess                                                                                           | 10        |
| 5.7 Glacial soils                                                                                   | 10        |
| 5.8 Anthropogenic soil                                                                              | 10        |
| 5.9 Origin of deposit                                                                               | 11        |
| 5.9.1 General                                                                                       | 11        |
| 5.9.2 Depositional environment                                                                      | 11        |
| 5.9.3 Geological unit                                                                               | 11        |
| <b>6 Description of soil</b>                                                                        | <b>11</b> |
| 6.1 Description of soil properties                                                                  | 11        |
| 6.1.1 Particle size distribution                                                                    | 11        |
| 6.1.2 Particle shape                                                                                | 11        |
| 6.1.3 Particle strength                                                                             | 12        |
| 6.1.4 Mineral composition                                                                           | 12        |
| 6.1.5 Fines content                                                                                 | 12        |
| 6.1.6 Consistency                                                                                   | 12        |
| 6.1.7 Soil colours                                                                                  | 13        |
| 6.1.8 Organic content                                                                               | 14        |
| 6.1.9 Carbonate content                                                                             | 14        |
| 6.1.10 Degree of decomposition of peat                                                              | 14        |
| 6.2 Description of different soil types                                                             | 15        |
| 6.2.1 Volcanic soils                                                                                | 15        |
| 6.2.2 Loess                                                                                         | 15        |
| 6.2.3 Glacial soils                                                                                 | 15        |
| 6.2.4 Anthropogenic soil                                                                            | 16        |
| <b>7 Description of bedding and discontinuities</b>                                                 | <b>16</b> |
| 7.1 Bedding                                                                                         | 16        |
| 7.2 Discontinuities                                                                                 | 17        |
| 7.3 Interbedding and mixed soils                                                                    | 17        |
| <b>8 Reporting</b>                                                                                  | <b>17</b> |
| <b>Annex A (informative) Procedures for identification of the primary fraction in mineral soils</b> | <b>19</b> |
| <b>Bibliography</b>                                                                                 | <b>23</b> |

**ISO 14688-1:2017(E)****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](http://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](http://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](http://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

### 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*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**