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

**Part 2:  
Principles for a classification**

*Reconnaissance et essais géotechniques — Dénomination, description  
et classification des sols —*

*Partie 2: Principes pour une classification*



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## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 14688-2 was prepared by Technical Committee ISO/TC 182, *Geotechnics*, Subcommittee SC 1, *Geotechnical investigation and testing*.

ISO 14688 consists of the following parts, under the general title *Geotechnical investigation and testing — Identification and classification of soil*:

- *Part 1: Identification and description*
- *Part 2: Principles for a classification*
- *Part 3: Electronic exchange of data on identification and description of soil*

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

## Part 2: Principles for a classification

### 1 Scope

This part of ISO 14688, together with ISO 14688-1, establishes the basic principles for the identification and classification of soils on the basis of those material and mass characteristics most commonly used for soils for engineering purposes. The relevant characteristics may vary and therefore, for particular projects or materials, more detailed subdivisions of the descriptive and classification terms may be appropriate.

Identification and description of soil are covered by ISO 14688-1.

The classification principles established in this part of ISO 14688 permit soils to be grouped into classes of similar composition and geotechnical properties and, with respect to their suitability for geotechnical engineering purposes, such as

- foundations,
- ground improvements,
- roads,
- embankments,
- dams, and
- drainage systems.

This part of ISO 14688 is applicable to natural soil and similar man-made material *in situ* and redeposited, but it is not a classification of soil by itself.

Identification and description of rock are covered by ISO 14689-1.

### 2 Normative references

The following referenced documents are indispensable for the application 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 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal plate*

ISO 14688-1, *Geotechnical investigation and testing — Identification and classification of soil — Part 1: Identification and description*

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 of ISO 14688-1 and the following apply.

#### 3.1 soil classification

assignment of soil into soil groups on the basis of certain characteristics, criteria and genesis

#### 3.2 soil group

a particular collection of soils of similar composition and geotechnical properties

#### 3.3 uniformity coefficient

$C_U$

measure of the shape of the grading curve within the range from  $d_{10}$  to  $d_{60}$

$$C_U = d_{60}/d_{10}$$

NOTE  $d_{10}$  and  $d_{60}$  are the particle sizes corresponding to the ordinates 10 % and 60 % by mass of the percentage passing.

#### 3.4 coefficient of curvature

$C_C$

measure of the shape of the grading curve within the range from  $d_{10}$ ,  $d_{30}$  to  $d_{60}$

$$C_C = (d_{30})^2/(d_{10} \cdot d_{60})$$

#### 3.5 water content

$w$

mass of water which can be removed from the soil, usually by drying, expressed as a percentage of the dry mass

#### 3.6 liquid limit

$w_L$

water content at which a fine soil passes from the liquid to the plastic condition, as determined by the liquid limit test

#### 3.7 plastic limit

$w_P$

water content at which a fine soil becomes too dry to be in a plastic condition, as determined by the plastic limit test

#### 3.8 plasticity index

$I_P$

numerical difference between the liquid limit and plastic limit of a fine soil

$$I_P = w_L - w_P$$