



NSAI
Standards

Irish Standard
I.S. EN ISO 17892-2:2014

Geotechnical investigation and testing -
Laboratory testing of soil - Part 2:
Determination of bulk density (ISO 17892-
2:2014)

I.S. EN ISO 17892-2:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

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Geotechnical investigation and testing - Laboratory testing of soil - Part 2: Determination of bulk density (ISO 17892-2:2014)

Reconnaissance et essais géotechniques - Essais de laboratoire sur les sols - Partie 2: Détermination de la masse volumique (ISO 17892-2:2014)

Geotechnische Erkundung und Untersuchung - Prüfen von Bodenproben im Labor - Teil 2: Bestimmung der Dichte von feinkörnigem Boden (ISO 17892-2:2014)

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

EN ISO 17892-2:2014 (E)

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Foreword

This document (EN ISO 17892-2:2014) has been prepared by Technical Committee ISO/TC 182 "Geotechnics" in collaboration 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of an identical text or by endorsement, at the latest by June 2015, and conflicting national standards shall be withdrawn at the latest by June 2015.

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.

This document supersedes CEN ISO/TS 17892-2:2004.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 17892-2:2014 has been approved by CEN as EN ISO 17892-2:2014 without any modification.

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**INTERNATIONAL
STANDARD**

**ISO
17892-2**

First edition
2014-12-01

**Geotechnical investigation and
testing — Laboratory testing of soil —**

**Part 2:
Determination of bulk density**

*Reconnaissance et essais géotechniques — Essais de laboratoire
sur les sols —*

Partie 2: Détermination de la masse volumique



Reference number
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

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. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword - Supplementary information](#)

ISO 17892-2 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 341, *Geotechnical investigation and testing*, in collaboration with Technical Committee ISO/TC 182, *Geotechnics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 17892-2 cancels and replaces ISO/TS 17892-2:2004, which has been technically revised. It also incorporates the Technical Corrigendum ISO/TS 17892-2:2004/Cor 1:2006.

ISO 17892 consists of the following parts, under the general title "*Geotechnical investigation and testing — Laboratory testing of soil*":

- *Part 1: Determination of water content*
- *Part 2: Determination of bulk density*
- *Part 3: Determination of particle density*
- *Part 4: Determination of particle size distribution*
- *Part 5: Incremental loading oedometer test*
- *Part 6: Fall cone test*
- *Part 7: Unconfined compression test on fine-grained soils*
- *Part 8: Unconsolidated undrained triaxial test*
- *Part 9: Consolidated triaxial compression tests on water-saturated soils*
- *Part 10: Direct shear tests*
- *Part 11: Determination of permeability by constant and falling head*
- *Part 12: Determination of Atterberg limits*

Introduction

This document covers areas in the international field of geotechnical engineering never previously standardised internationally. It is intended that this document presents broad good practice throughout the world and significant differences with national documents is not anticipated. It is based on international practice (see Reference [\[1\]](#)).

Geotechnical investigation and testing — Laboratory testing of soil —

Part 2: Determination of bulk density

1 Scope

This International Standard specifies three methods for the determination of the bulk density of soils, comprising:

- a) linear measurement method;
- b) immersion in fluid method;
- c) fluid displacement method.

This International Standard is applicable to the laboratory determination of the bulk density of soil within the scope of geotechnical investigations.

The linear measurement method is suitable for the determination of the bulk density of a specimen of soil of regular shape, including specimens prepared for other tests. The specimens used are either rectangular prisms or cylinders with circular cross sections.

The immersion in fluid method covers the determination of the bulk density of a specimen of natural or compacted soil by measuring its mass in air and its apparent mass when suspended in fluid. The method may be used when lumps of material of suitable size can be obtained.

The fluid displacement method covers the determination of the bulk density of a specimen of soil by measuring its mass in air and the mass of fluid displaced by immersion. The method may be used when lumps of material of suitable size can be obtained.

If the immersion in fluid method or fluid displacement method is used, and if the fluid is likely to penetrate into the specimen (eg water) the specimen should be coated before testing to prevent fluid penetration.

The bulk density of a soil is useful in the determination of the *in situ* overburden stress as a function of depth.

If required, the dry density of a specimen may be calculated from the bulk density and the water content, if known.

NOTE This International Standard fulfils the requirements of the determination of the bulk density of soils for geotechnical investigation and testing in accordance with EN 1997-1 and EN 1997-2.

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 17892-1, *Geotechnical investigation and testing — Laboratory testing of soil — Part 1: Determination of water content*

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

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