TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN ISO/TS 17892-2

October 2004

ICS 13.080.20; 93.020

English version

Geotechnical investigation and testing - Laboratory testing of soil - Part 2: Determination of density of fine-grained soil (ISO/TS 17892-2:2004)

Reconnaissance et essais géotechniques - Essais de sol au laboratoire - Partie 2: Détermination de la masse volumique d'un sol fin (ISO/TS 17892-2:2004)

Geotechnische Erkundung und Untersuchung - Laborversuche an Bodenproben - Teil 2: Bestimmung der Dichte von feinkörnigem Boden (ISO/TS 17892-2:2004)

This Technical Specification (CEN/TS) was approved by CEN on 2 December 2003 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. CEN ISO/TS 17892-2:2004: E

Contents

Figures

Foreword

This document (CEN ISO/TS 17892-2:2004) has been prepared by Technical Committee CEN/TC 341 “Geotechnical investigation and testing”, the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 182 “Geotechnics”.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CEN ISO/TS 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 density of fine grained soil

— Part 3: Determination of particle density - Pycnometer method

— 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-grain 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 the Atterberg limits

Introduction

This document covers areas in the international field of geotechnical engineering never previously standardised. 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 [1]).

1 Scope

This document specifies methods of test for the determination of the bulk and dry density of intact soil or rock within the scope of the geotechnical investigations according to prEN 1997-1 and prEN 1997-2.

The bulk density of a soil is useful in the determination of the in-situ overburden stresses at various depth (geostatic stresses). Furthermore, bulk and dry density can qualitatively describe the mechanical characteristics of a soil via empirical relationships which are to be found in the technical literature. Such relationships should be used only as guidelines and should be supplemented by direct measurements of the mechanical characteristics.

This document describes three methods:

a) linear measurements method;

b) immersion in water method;

c) fluid displacement method.

The linear measurement method is suitable for the determination of the density of a specimen of cohesive soil of regular shape, including specimens prepared for other tests. The specimens used are normally in the form of either rectangular prisms or straight cylinders.

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

The fluid displacement method covers the determination of the bulk density and dry density of a specimen of soil by measuring mass and displacement of water or other appropriate fluid after immersion. The method is employable whenever lumps of material of suitable size can be obtained.

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.

prEN 1997-1, *Eurocode 7 - Geotechnical design — Part 1: General rules.*

prEN 1997-2*, Eurocode 7 - Geotechnical design — Part 2: Ground investigation and testing.*

CEN ISO/TS 17892-1, *Geotechnical investigation and testing — Laboratory testing of soil — Part 1: Determination of water content (ISO/TS 17892-1:2004).*