

STN	Kvalita pôdy. Stanovenie vodnej retenčnej schopnosti pôdy. Laboratórne metódy (ISO 11274:1998 + Cor 1: 2009).	STN EN ISO 11274 46 5215
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Soil quality - Determination of the water-retention characteristic - Laboratory methods (ISO 11274:1998 + Cor 1:2009)

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. 08/14

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EUROPEAN STANDARD
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EN ISO 11274

March 2014

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English Version

**Soil quality - Determination of the water-retention characteristic -
Laboratory methods (ISO 11274:1998 + Cor 1:2009)**

Qualité du sol - Détermination de la caractéristique de la
rétention en eau - Méthodes de laboratoire (ISO
11274:1998 + Cor 1:2009)

Bodenbeschaffenheit - Bestimmung des
Wasserrückhaltevermögens - Laborverfahren (ISO
11274:1998 + Cor 1:2009)

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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Foreword

The text of ISO 11274:1998, including Cor 1:2009 has been prepared by Technical Committee ISO/TC 190 “Soil quality” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 11274:2014 by Technical Committee CEN/TC 345 “Characterization of soils” the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by September 2014, and conflicting national standards shall be withdrawn at the latest by September 2014.

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Endorsement notice

The text of ISO 11274:1998, including Cor 1:2009 has been approved by CEN as EN ISO 11274:2014 without any modification.

INTERNATIONAL STANDARD

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Soil quality — Determination of the water- retention characteristic — Laboratory methods

*Qualité du sol — Détermination de la caractéristique de la rétention en
eau — Méthodes de laboratoire*



Reference number
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International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet iso@iso.ch

Printed in Switzerland

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.

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.

International Standard ISO 11274 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 5, *Physical methods*.

Annexes A and B of this International Standard are for information only.

Introduction

Soil water content and matric pressure are related to each other and determine the water-retention characteristics of a soil. Soil water which is in equilibrium with free water is at zero matric pressure (or suction) and the soil is saturated. As the soil dries, matric pressure decreases (i.e. becomes more negative), and the largest pores empty of water. Progressive decreases in matric pressure will continue to empty finer pores until eventually water is held in only the finest pores. Not only is water removed from soil pores, but the films of water held around soil particles are reduced in thickness. Therefore a decreasing matric pressure is associated with a decreasing soil water content [5], [6]. Laboratory or field measurements of these two parameters can be made and the relationship plotted as a curve, called the soil water-retention characteristic. The relationship extends from saturated soil (approximately 0 kPa) to oven-dry soil (about -10^6 kPa).

The soil water-retention characteristic is different for each soil type. The shape and position of the curve relative to the axes depend on soil properties such as texture, density and hysteresis associated with the wetting and drying history. Individual points on the water-retention characteristic may be determined for specific purposes.

The results obtained using these methods can be used, for example:

- to provide an assessment of the equivalent pore size distribution (e.g. identification of macro- and micropores);
- to determine indices of plant-available water in the soil and to classify soil accordingly (e.g. for irrigation purposes);
- to determine the drainable pore space (e.g. for drainage design, pollution risk assessments);
- to monitor changes in the structure of a soil (caused by e.g. tillage, compaction or addition of organic matter or synthetic soil conditioners);
- to ascertain the relationship between the negative matric pressure and other soil physical properties (e.g. hydraulic conductivity, thermal conductivity);
- to determine water content at specific negative matric pressures (e.g. for microbiological degradation studies);
- to estimate other soil physical properties (e.g. hydraulic conductivity).

Soil quality — Determination of the water-retention characteristic — Laboratory methods

1 Scope

This International Standard specifies laboratory methods for determination of the soil water-retention characteristic.

This International Standard applies only to measurements of the drying or desorption curve.

Four methods are described to cover the complete range of soil water pressures as follows:

- a) method using sand, kaolin or ceramic suction tables for determination of matric pressures from 0 kPa to – 50 kPa;
- b) method using a porous plate and burette apparatus for determination of matric pressures from 0 kPa to – 20 kPa;
- c) method using a pressurized gas and a pressure plate extractor for determination of matric pressures from – 5 kPa to – 1500 kPa;
- d) method using a pressurized gas and pressure membrane cells for determination of matric pressures from – 33 kPa to – 1500 kPa.

Guidelines are given to select the most suitable method in a particular case.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN